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Marine Boundary Layer Sampling Flight No. 2

IAN D. COHEN, Copt, USAF



11 October 1979

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METEOROLOGY DIVISION PROJECT 317J AIR FORCE GEOPHYSICS LABORATORY

HANSCOM AFB, MASSACHUSETTS 01731

AIR FORCE SYSTEMS COMMAND, USAF



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FOR THE COMMANDER

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Hewood Chief Scientist

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N:1123 Unclassified SECURITY CLASS'FICATION OF THIS BASE (Then Date Enter READ INSTRUCTIONS BEFORE COMPLETING FOR **REPORT DOCUMENTATION PAGE** RECIPIENT'S CATALOG NUE RP-678 TR-79-9242, AFG TYPE OF REPORT & PERIOD COVERED MARINE BOUNDARY LAYER SAMPLING, Scientific. Interim. FLIGHT 6. PERFORMING ORG. REPORT NUMBER lum ber ERP No. 678 CONTRACT OR GRANT NUMBER(*) AUTHOR(.) Ian D. Cohen Capt, USAF IC. PERFORMING ORGANIZATION NAME AND AODRESS PPOGPAN ELEMENT, PROJECT, TASK Air Force Geophysics Laboratory (LYC) Hanscom AFB 63605F 16 Massachusetts 01731 317JB 11. CONTROLLING OFFICE NAME AND ADDRESS Air Force Geophysics Laboratory (LYC) 11 Octet 79 Hanscom AFB Massachusetts 01731 75 MONITORING AGENCY NAME & ADDRESSI !! #! IS. SECURITY CLASS. (of this report) m Con Iting Office Unclassified 154 DECLASSIFICATION/DOWNGRADING 16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited. resear -nvirahm 17. DISTRIBL SUPPLEMENTARY NOTES ORIGINAL CONTAINS COLOR PLATES: ALL DODY REPRODUCTIONS WHITE sundary layer Particle distribution Air-sea interaction Haze Sea spray ABSTRACT (Continue on reverse and it in accessory and identify by block number) ~ On 22 March 1979, an instrumented MC-130E for cloud physics measurements by AFGL made a series of 8-min sampling passes at altitudes ranging from 100 to 1000 ft above the ocean surface off the coast of Washington. The flight profile was similar to that flown by the same aircraft on 10 July 1978 off the coast of California (AFGL-TR-79-0013). Winds were light, and the visibility generally was 7 miles or greater. Varying numbers of particles were detected in the 2 to 22 micrometer range at all levels. The number of particles was fairly constant with altitude; liquid water content (LWC) was about DD 1 JAN 73 1473 EDITION OF I NOV SE IS DESOLETE Unclassified SECURITY CLASSIFICATION OF THIS PAGE (When Date Enter 409578 Ju

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Preface

This report is the result of much hard work by many contributors. The aircrew, especially Major Robert Patterson, Captains Willie Cole and Pat Collins, and the maintenance crew headed by Mr. Bill Ellis, all of the 4950th Test Wing, did an outstanding job in flying and maintaining the aircraft so that the proper data could be gathered. Joining me on the project crew were Mr. Donald McLeod, MSgt James Bush, SSgt Dennis LaGross, SrA R. Lou Ames, SrA Grant Matsuoka, and A1C Wayne Domeier, all of AFGL/LYC. I wish to thank Lt Colonel Donald Varley for his help in preparing this report. Dr. Arnold Barnes, Jr. also provided much assistance. Mrs. Pat Sheehy and Ms. Barbara Main are commended for their help preparing the manuscript. Michael Francis and James Lally of Digital Programming Services, Inc. prepared the computer printouts of the data.

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Tables

1. Sampling Pass Data for 22 March 1979 Flight

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Marine Boundary Layer Sampling Fliaht No.2

1. INTRODUCTION

The AFGL-instrumented MC-130E aircraft flew off the Washington coast on 22 March 1979 to obtain particulate data in the cloud-free boundary layer. The aircraft is maintained and flown by personnel of the 4950th Test Wing at Wright-Patterson AFB, Ohio. The flight was made under the auspices of the Air Force Weapons Laboratory at Kirtland AFB, New Mexico, to acquire data for its Advanced Radiation Technology program.

The flight profile is similar to a previous AFGL sampling flight made on 10 July 1978 off the California coast. Varley¹ has described data from this first flight: Relatively dense populations of 2- to 30 μ m particles at 100, 200, and 400 ft MSL were found; at the 300-ft level, there were considerably fewer particles, a finding not fully explained; and at higher levels (500 to 1000 ft MSL) there were fewer particles, as substantiated from earlier measurements of Woodcock² and Hobbs.³ Certain other results of the 10 July flight will be outlined and compared in the following pages.

(Received for publication 10 October 1979)

^{1.} Varley, D.J. (1979) A Marine Boundary Layer Sampling Flight in Clear Air, ERP No. 652, AFGL-TR-79-0013, AD A069723.

Woodcock, A. H. (1953) Salt nuclei in marine air as a function of altitude and wind force, <u>Jour. of Meteorol</u>. 10:362-371.

Hobbs, P.V. (1971) Simultaneous airborne measurements of cloud condensation nuclei and sodium containing particles over the ocean, <u>Quart. Jour. Royal</u> <u>Meteorol. Soc.</u> 97:263-271.

Much of the cloud physics instrumentation on the C-130 was described by Varley.⁴ Ordinarily three Particle Measuring Systems' 1-D spectrometer probes are used. On the flight described herein, the precipitation probe had been removed to enable test data to be acquired by a new Forward Scattering Spectrometer Probe (FSSP). The other spectrometer probes utilized were the Axial Scattering Spectrometer Probe (ASSP) and the cloud probe. The last two record particles in the 2 to 30- μ m and 23- to 300- μ m range, respectively. The FSSP provides data over approximately the same particle size range as the ASSP; however, in this report only ASSP and cloud probe data have been used.

The ASSP was the main source of particulate data; it measured the light scattered by particles, calculating their size and number. The ASSP served the same function on the 10 July flight. Ryder⁵ explains that the droplet mass determined by this instrument may not be precise; however, the relative values calculated from its measurements are believed to be useful. Further information on the FSSP is given by Particle Measuring Systems, Inc.⁶ and Knollenberg.⁷

2. SYNOPTIC SITUATION

A strong upper air ridge moved into the Eastern Pacific area on 19 March. This feature, which was responsible for a week of nearly cloud-free weather for the Pacific Northwest, is shown in Figure 1, the 500-mb pattern at 00Z on 23 March. On 22 March, a surface high pressure system off the Washington coast provided clear conditions with little wind in the area of the flight. By 00Z, the high was ridged eastward into central Washington, as shown in Figure 2.

^{4.} Varley, D. J. (1978) Cirrus Particle Distribution Study, Part 1, Air Force Surveys in Geophysics, No. 394, AFGL-TR-78-0192, AD A061485.

Ryder, P. (1976) The measurement of cloud droplet spectra, <u>Preprints of</u> <u>International Conference on Cloud Physics</u>, American Meteorological Society, 26-30 July 1976, Boulder, Colorado, pp 576-580.

^{6.} Particle Measuring Systems, Inc. (1976) Forward Scattering Spectrometer Probe PMS Model FSSP-10, Operating Manual, PMS, Inc., Boulder, Colorado.

Knollenberg, R.G. (1976) Three new instruments for Cloud Physics Measurements: The 2-D Spectrometer, the Forward Scattering Spectrometer Probe, and the Active Scattering Aerosol Spectrometer, Preprints of International Conference on Cloud Physics, American Meteorological Society, 26-30 July 1976, Boulder, Colorado, pp 554-561.



Figure 3 shows the 23/00Z radiosonde data for Quillayute on the Washington coast. The dry nature of the atmosphere from the surface to 18,000 ft (5.5 km) is evident. Hoquiam, also on the Washington coast, reported a thin scattered cloud layer at 18,000 feet. However, most other coastal stations reported clear conditions at the time of the sampling flight. Figure 4, a western GOES satellite picture taken at 2215Z, during the first data pass, shows the generally cloud-free area over Washington and the off-shore waters. Conditions remained clear throughout the afternoon, providing excellent weather over the sampling area, shown in Figure 5.

The surface high pressure ridge provided stability in the lowest 1000 ft of the atmosphere. There was no turbulence encountered during the overwater portion of the flight. Haze occasionally reduced the visibility to less than seven miles, but the prevailing visibility usually was unrestricted. A bank of shallow sea fog with tops near 100 ft was located east of the sampling area; however, the aircraft did not fly through it. Figures 6 and 7 show the fog at the aircraft's closest approach. As can be seen, the edge of the fog bank was distinct, and the visibility outside the bank was excellent.



Figure 3. Radiosonde Sounding at Quillayute, WA 00Z, 23 March 1979



Figure 4. Western GOES Satellite Photograph, 2215Z, 22 March 1979



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Figure 6. Sampling Area from 500 ft: Pass 5



Figure 8. Sampling Area from 100 ft: Pass 1

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Figure 7. Sampling Area from 750 ft: Pass 7



Figure 9. Sampling Area from 100 ft: Pass 6

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3. THE FLIGHT

The flight profile was as much like the 10 July 1978 flight as possible; this facilitated comparison of data from corresponding levels. The aircraft departed McChord AFB, Washington at 2124Z and flew to the Hoquiam VORTAC station. It then descended to an altitude of 100 ft over the water. All sampling passes were flown back and forth along the 210 degree compass radial from Hoquiam. A practice run was flown at 100 ft from a point 35 nm to one 55 nm from Hoquiam. All subsequent legs were flown between these same points, with legs 1, 3, 5, and 7 being inbound, and legs 2, 4, 6, and 8 being flown outbound to the southwest. The altitudes sampled were in the same sequence as those of the 1978 flight; that is, 100, 200, 300, 400, 500, 100, 750, and 1000 feet.

Each straight-line pass was 20 nm long and lasted approximately 8 min while the pilots maintained the desired altitude using the aircraft's radar altimeter. All passes were flown in clear air, away from the sea fog noted earlier.

After acquiring data (see Section 4), the aircraft flew toward Astoria, Oregon, to obtain data for another program. It then returned to McChord AFB, landing there at 0104Z, 23 March (1704 PST, 22 March). A summary of the altitude and time of particular passes, as well as certain other data acquired during the flight, is given in Table 1.

| Pass Number | Altitude (feet) | Begin (Z) Time | Heading | Aircraft Temperature | Aircraft Wind at 35 DME* | (degree/kt) at 55 DME* |
|----------------|--------------------|-------------------|---------|-------------------------|--------------------------------|------------------------------|
| 1 | 100 | 22:15:00 | 030 | 10.9 °C | 280/05 | L/V [†] |
| 2 | 200 | 22:31:00 | 210 | 11.4 | 011/07 | L/V |
| 3 | 300 | 22;45;30 | 030 | 12.8 | 012/08 | L/V |
| 4 | 400 | 22:58:00 | 210 | 13.0 | 039/13 | 100/05 |
| 5 | 500 | 23:10:00 | 030 | 12.6 | 056/07 | 170/06 |
| 6 | 100 | 23:25:30 | 210 | 11.3 | 024/11 | 045/04 |
| 7 | 750 | 23:39:00 | 030 | 14.0 | 058/06 | 094/08 |
| 8 | 1000 | 23:52:00 | 210 | 14.2 | 052/09 | 055/12 |

Table 1. Sampling Pass Data for 22 March 1979 Flight

*Distance mean equivalent distance from Hoquiam.

 $t_{L/V}$ windspeed was light (less than 5 knots); wind direction was variable.

4. COMPARISON OF THE TWO FLIGHTS

The flights of 10 July 1978 and 22 March 1979 were similar in that both were low-level overwater flights. The two flights consisted of 8 data legs following the same sequence of altitudes. On both days the weather was clear, although there was some haze near the surface.

The greatest meteorological difference between the two flights was the surface windspeed: Surface observations along the Washington coast on 22 March indicated windspeeds of less than 10 knots; the corresponding windspeeds on the California coast on 10 July 1978 were 15 to 20 knots. Winds measured by the aircraft at the various sampling levels also averaged 5 to 10 knots less on 22 March. Figures 8 and 9 show the surface of the ocean in the sampling area from an altitude of 100 ft on 22 March. Unlike the 10 July case, there were almost no whitecaps. The lack of whitecaps is also evident in Figure 6 and Figure 7.

The temperature profiles of the two flights are compared in Figure 10. On 10 July strong mixing resulted in nearly isothermal conditions in the lowest 1000 ft, although there was a minor inversion at 400 feet. On 22 March the temperature in the first 1000 ft increased with height, cooling only on the ascent from 400 to 500 feet. Evidently the cooler sea surface affected the temperature in the lowest 500 feet. During the flight, the aircraft reported temperatures of 11.0° to 11.6°C at altitudes of 100 to 500 ft, while Hoquiam reported a surface temperature of 15°C at 23 March 00Z (22 March 1600 PST).

This temperature contrast over land and sea was also recorded by the AFGL McIDAS (Man-Computer Interactive Data Access System) satellite receiver, which measured an infrared temperature of 10°C in the sampling area, while giving temperatures of 13° to 15°C for land areas along the coast. The cool stable layer near the surface and the light winds contributed to the more uniform distribution of particles observed in the lower levels on 22 March. Latham⁸ noted that mixing increases the number of small particles in the boundary layer. In this study, the stable meteorological situation was not conducive to the generation of small particles.

8. Latham, J. (1979) Visibility Within and Electromagnetic Transmission Through Natural Clouds and Fogs, Second Interim Report to AFOSR on Grant AFOSR-78-3511.



Figure 10. Average Temperature vs Height for 22 March 1979 and 12 June 1978

Figure 11 shows the contrast in vertical distribution of averaged liquid water content (LWC) with height. The greater LWC at 100, 200, and 400 ft on the earlier flight is evident in both cases. The value reported on Pass 1 is used as representative of the LWC at 100 feet. The values reported on Pass 6 are indicated by an x for the 22 March 1979 flight and a + for the 10 July 1978 flight. The finding of greater numbers of particles and a higher LWC associated with higher low-level winds agrees with Woodcock² who noted that an increase in windspeed results in an increase of salt particles in the lowest kilometer of the atmosphere over the ocean. He attributed this to bursting of bubbles in whitecaps. Similarly, Podzimek⁹ observed an intense generation of small particles over whitecaps. Podzimek¹⁰ and Monahan¹¹ also indicated that increases of surface windspeed will increase the amount of sea spray. The variation of particle content and LWC from these flights seems to indicate that the wind can affect the particle content of the marine boundary layer.

Podzimek, J. (1978) Concentration fluctuation of marine aerosol in the planetary boundary layer, Preprints of Conference on Cloud Physics and Atmospheric <u>Electricity</u>, American Meteorological Society, 31 July - 4 August 1979, Issaquah, Washington, pp 20-24.

^{10.} Podzimek, J. (1976) Literature Survey of Marine Aerosol Research, NAVENVPREDRSHFAC Contractor Report CR 78-03.

^{11.} Monahan, E.C. (1971) Oceanic whitecaps, Jour. of Physical Oceanography, 1:139-144.





Figure 11. Liquid Water Content (LWC) vs Height

Blanchard¹² noted that whitecaps are affected by the temperature, but in these two sampling cases, the surface temperatures were almost identical. Blanchard also pointed out, as also Woodcock, that where whitecaps appear, there are numerous bubbles bursting near the surface. This mechanism was probably responsible for the large number counts at the lowest levels flown on 10 July.

Blanchard and Syzdek¹³ noted in their study of Aitken and giant nuclei particles with diameters of 10^{-1} to 10 μ m that the number of these particles at a given location will vary with time. This may also be true of the particles in the 2- to 30-m range measured by our ASSP.

5. DISCUSSION OF DATA

Figure 12 shows the variation of computed liquid water content during each of the first five passes (at 100 through 500 ft MSL). There is relatively little change in liquid water content either with position or altitude, although slightly higher values occur in the lower levels. This may be due to the temperature inversion and lack of mixing which kept most particles close to the surface of the ocean. Variation during each straight-line pass was also small, possibly again due to the stable environment.

^{12.} Blanchard, D.C. (1971) Whitecaps at sea, Jour. of the Atmospheric Sciences, 28:645.

^{13.} Blanchard, D.C., and Syzdek, L.D. (1972) Variations in Aitken and giant nuclei in marine air, Journal of Physical Oceanography 2:255-262.



TIME (minutes from Pass start)

Figure 12. Liquid Water Content vs Time: Passes 1 to 5

Figure 13 shows the liquid water content vs time for Passes 6, 7, and 8. Pass 6 was a return to the 100-ft level. Although the mean liquid water content had changed little from Pass 1, the variation with time was somewhat greater. The windspeed was generally a little higher on Pass 6 than on Pass 1, and occasionally a small whitecap could be seen. The liquid water content at 750 ft is less than that seen at any of the lower levels. It is less than three-fourths of the LWC at 500 ft, and less than one-fourth of the LWC at 100 feet.

Figures 12 and 13 present axial scatter spectrometer probe (ASSP) data alone. Only an insignificant number of particles was observed in the higher range measured by the cloud probe. The FSSP replaced the precipitation probe, and no effort was made to record particles in the range greater than 300 μ m. However, it is safe to assume that the number of larger particles was negligible. The LWC reported by the FSSP was generally higher than that reported by the ASSP; however, several alignment problems were later discovered on the former, so only the latter data were considered in this study.

On this flight, the liquid water content decreased with height except from 400 to 500 feet. This same altitude interval was the only one to show a decrease in temperature. The 500-ft level had a slightly better visibility than the lower levels; however, the visibility was improving with time. The visibility at 100 ft improved slightly from the time of Pass 1 (2215Z) to that of Pass 6 (2325Z). At the latter time, the distant sea fog seemed better defined. Changes in LWC in the horizontal,

however, were very small as compared to the changes in LWC observed on the 10 July flight. The atmosphere was more stable on 22 March and, in general, particle content was small and decreased rather smoothly with height.



Figure 13. Liquid Water Content vs Time: Passes 6 to 8

Toba¹⁴ observed that the distribution of salt particles varied exponentially with height. The liquid water content above 500 ft appeared to drop off exponentially with height, and the slope of this line if extended downward, would pass quite close to all of the points observed at lower levels. The distribution of liquid water content with height appears to confirm this. Toba¹⁵ also noted that the distribution of eddy diffusivity varied with windspeed. This may help to explain why the particle distribution observed on the July 1978 flight was more irregular than that observed on the March 1979 flight. He also noted that an exponential wind profile would result in an exponential distribution of particles with height.

^{14.} Toba, Y. (1965) On the giant sea salt particles in the atmosphere; I - General Features of the Distribution, <u>Tellus</u> <u>17</u>:131-145.

^{15.} Toba, Y. (1965) On the giant sea salt particles in the atmosphere; II - Theory of the Vertical Distribution in the 10 m layer over the Ocean, Tellus 17:365-382.

Figure 14 shows the profiles of wind with height at both ends of the sampling area. At the south end (55 nm SE of Hoquiam) the windspeed profile is quite close to exponential. Since the winds there during Passes 1 to 3 were recorded as "light and variable," the wind recorded in Pass 6 (4 knots) is used as representative of this level. At the north end (35 nm SE of Hoquiam), the wind profile is exponential through the first 4 passes, but above that it becomes random. Thus no definite conclusion as to the existence of an exponential profile can be drawn from these data.

Toba¹⁶ also noted that the world-wide salt particle distribution is affected by wind and humidity. Data from these flights support the supposition that wind affects such distributions. Unfortunately, the dew point hygrometer was inoperative on 22 March, so no humidity data are available.

Figure 15 shows how liquid water content, medium volume diameter, temperature, and altitude varied throughout the data gathering portion of this flight. A decrease in LWC with altitude is evident. The medium volume diameter, however, shows little if any trend. Thus the shape of the distribution is not changing; rather it is the number of particles which decrease as we get higher. As Figure 16 shows, the number of particles recorded by the 4, 10, and 18 μ m size channels all decrease at approximately the same exponential rate, although the larger (18 μ m) particles behave in a more erratic manner then do the smaller particles. The channel size noted represents the medium size of a 2 μ m wide class. Therefore, the 4 μ m line, for example, represents the total number of particles between 3 μ m and 5 μ m in diameter as a function of altitude.



Figure 14. Wind vs Height at Ends of Sampling Area

16. Toba, Y. (1966) On the giant sea salt particles in the atmosphere; III - An estimate of the production and distribution over the world ocean, <u>Tellus</u> 18:132-135.



Figure 15. Liquid Water Content, Medium Volume Diameters, Temperature, and Altitude vs Time

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Figure 16. Particles per Cubic Meter vs Time

Figures 17 and 18 show the size distribution of particles during the 8 passes. Again, the number of particles drops off faster in this case than on the 10 July 1978 flight. In general, the curves are quite close to exponential. This is most striking between 4 and 12 μ m. The distribution of larger particles is more sporadic. The variation of number of particles with altitude is also much less than it was on the 10 July flight.



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6. CONCLUDING REMARKS

As a general rule, the data observed on this flight were closer to theoretical results than the data observed on 10 July 1978. The data did not show a wide variation in particle size distribution. Instead there was relatively uniform distribution of particles, and a nearly exponential decrease in LWC with altitude was observed. This may be due to the low surface windspeeds and the resulting absence of whitecaps. Small particles were observed even in a no-wind, no-cloud situation, but their number was considerably smaller than the number observed on the 10 July flight.

Blanchard¹⁷ notes that the majority of particles that come from the sea are from bubbles that burst at the ocean surface. Blanchard and Woodcock¹⁸ describe four mechanisms for bubble production: Two of the four, rain and snow, did not apply to either case; the third, whitecaps, applied much more to the first flight than to the second; the fourth, expansion of air trapped near the surface of the ocean due to warming at the surface, was probably occurring on both flights. Blanchard and Woodcock expect this fourth mechanism to be most active in spring

Blanchard, D.C. (1963) Electrification of the atmosphere by particles from bubbles at sea, <u>Progress in Oceanography</u>, Permagon Press, New York, N.Y., pp 71-202.

Blanchard, D.C., and Woodcock, A.H. (1957) Bubble formation and modification in the sea and its meteorological significance, <u>Tellus</u> 9:145-158.

and summer, when the water is cooler than the air. This mechanism may be primarily responsible for those particles that did occur in the boundary layer observed on 22 March 1979.

Appendix A contains some of the transcribed comments of the Mission Directors aboard the aircraft during the 22 March flight. The data recorded by the ASSP are presented in Appendices B and C.

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- 10. Podzimek, J. (1976) Literature Survey of Marine Aerosol Research, NAVENVPREDRSHFAC Contractor Report CR 78-03.

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- Blanchard, D. C., and Syzdek, L.D. (1972) Variations in Aitken and giant nuclei in marine air, Journal of Physical Oceanography 2:255-262.
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- Blanchard, D. C., and Woodcock, A. H. (1957) Bubble formation and modification in the sea and its meteorological significance, <u>Tellus</u> 9:145-158.

Appendix A

Transcript of Notes and Voice Tape Mission 79-27, 22-23 March 1979

The following are excerpts from a transcript of the notes and voice tape made by the Mission Directors (the author and Mr. Donald McLeod) during the flight of 22 March 1979.

| Time | Comment |
|-----------|---|
| 21:24:44Z | Take off from McChord AFB, Washington. |
| 47:25 | Over Hoquiam. |
| 48:25 | Over the shoreline. Altitude: 5,000 feet. |
| 49:25 | Over water; hazy; no clouds. |
| 52:22 | Going south. Surface wind estimate 270 degrees at 5 knots |
| | No whitecaps. |
| 22:01:31 | Level at 100 ft for a practive run. |
| 04:30 | Starting a turn to prepare for first data run. |
| 07:00 | Altitude: 700 feet. Turning. Crew sights porpoises. |
| 09:15 | No whitecaps. |
| :40 | Fog bank to the left. |
| 11:10 | Beginning a left turn toward Hoquiam. |
| 15:00 | Stable at 100 ft, beginning Pass 1. |
| 16:42 | Altitude 100 ft, wind light and variable. Clear above. |
| | Visibility 7+. |

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| Time | Comment |
|---------------|---|
| 22:18:00 | No whitecaps. Ride exceptionally smooth. |
| 23:30 | Stop Pass. |
| 31:00 | Start Pass 2. Altitude 200 feet. Still no clouds above. |
| 33:00 | Weather clear. |
| 34:00 | Crew sights a whale. |
| 39:00 | End of pass. |
| 41:00 | Fog bank east of the aircraft. |
| 43:30 | Begin Pass 3. Altitude 300 feet. |
| 45:00 | Temperature = 14°C. Looks like the top of an inversion. |
| | Haze layer top is visible. |
| 49:40 | Passed a buoy seen near the end of Pass 1. |
| 52:00 | End Pass. |
| 58:00 | Begin Pass 4. Visibility still good. Wind stronger - 090/13. |
| 59:20 | 39 DME from Hoquiam. Altitude: 300 feet. |
| 23:03:14 | Fog bank to the east of airplane is still there. The leading |
| | edge is getting billowy. |
| 23:05:30 | End of Pass 4. |
| 09:20 | Fog bank closer than before. |
| 10:00 | In Pass 5: at 500 feet. |
| 18:00 | End of Pass. |
| 20:09 | At 1000 ft in a turn. Visibility at 1000 ft much better than at |
| | 100 to 500 feet. |
| 25:30 | Begin Pass 6. Wind 360/11 at 100 feet. |
| 26:50 | Visibility has improved since first pass. Temperature |
| | went up to 13.9°C. |
| 31:26 | Fog bank has appeared again. |
| 31:45 | Fog bank is 100 ft high. |
| 33:00 | End of Pass 6. |
| 37:10 | Low stratus looks like type cloud seen at 10,000 ft, but is |
| | actually at 50 feet. |
| 39: 00 | Begin Pass 7 at 750 feet. |
| 39:55 | Low stratus cloud over end of orbit. |
| 42:20 | In the clear, cloud bank to the right. |
| 44:00 | 8 nm left in pass. Haze seems to be increasing. |
| 46:40 | Isolated whitecaps visible. |
| 47:30 | Pass 7 is over. Climbing to 1000 feet. |
| 52:00 | Begin Pass 8 at 1000 feet. |
| 53:10 | Temperature: 17.3°C, Wind: 039/09, |

| Time | Comment |
|----------|--|
| 23:54:00 | Fog off to the horizon. Clear except for one small cirrus patch. |
| 55:00 | Wind decreases as we get farther from Hoquiam. |
| 58:45 | One mile left in pass. No clouds except sea fog. |
| 00:00:00 | End of last pass. Climbing to 2000 feet. |
| 01:00 | Cleared to 5000 feet. Going to Astoria (for other work). |
| 01-03-58 | Land at McChord AFB. |

Appendix B

Average Particle Distributions for Each Pass

Average particle distributions from the PMS Axial Scattering Spectrometer Probe are presented for each of the eight sampling passes.

The <u>actual</u> altitude of each pass is given at the top of the printout. The <u>pressure</u> altitude, based on an altimeter setting of 29.92 in. Hg, is listed in each printout as "PR-ALT".

The particle option type "Rain" was selected for liquid water content (LWC) computations since most of the particles can be expected to be water droplets. Other types of particles (for example, salt crystals) were not considered numerous enough to affect the LWC.

The LWC and Med D (medium volume diameters) have units of g m⁻³ and $_{+}m$, respectively.

Liquid water content, Med D, and Z (reflectivity) are for the Axial Scattering Spectrometer Probe only.

Multiplying the distribution numbers by 0.002 mm will convert from the normalized distribution units of $[m^3-mm]^{-1}$ to unnormalized units of m^{-3} .

FRECEDING FACE BLANK-NOT FILMED

PASS 1 - 100 Ft.

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MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 489 Second Averaging Type: Rain Interval Start: *22:15:90*

| ARTICL | E SIZE | DISTRIBUTIO | NS I | PRESS | (MB) |
|---------|--------|---------------|-------|-------|--------|
| SIZE (M | U) NE | INBER/(N++3-N | M) | 10 | 25.69 |
| 2 | | 9.28E+#7 | | | |
| 4 | | 1.97E+98 | 1 | PR AL | T (KH) |
| 6 | | 2.90E+07 | | | 19 |
| 8 | | 1.05E+07 | | | |
| 19 | | 2.89E+96 | 1 | ۲ I | ø.92C |
| 12 | | 8.50E+05 | | | |
| 14 | | 6.14E+Ø5 | 1 | FAS | (M/S) |
| 16 | | 4.09E+05 | | | 76.27 |
| 18 | | 1.71E+Ø5 | | | |
| 29 | | 3.39E+Ø4 | 1 | 1 7.3 | 3E-Ø8 |
| 22 | | 3.45E+Ø4 | | | |
| 24 | | 9. | | | |
| 26 | | 9. | | | |
| 28 | | 9. | | | |
| 30 | | 9 . | | | |
| | LWC | 3.40E-95 | MED T | 1 7 | |

PASS 3 - 300 Ft.

MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 480 SECOND AVERAGING TYPE: RAIN INTERVAL START; *22:43:30*

| PARTICLE | SIZE | DISTRIBUTION | IS | PRE | SS (MB) |
|----------|-------|---------------|-----|-----|----------|
| SIZE (NU |) NUI | NBER/(N++3-Nh | Ð | | 1918.92 |
| 2 | | 1.25E+Ø8 | | | |
| 4 | | 8.92E+Ø7 | | PR | ALT(Kin) |
| 6 | | 1.70E+07 | | | 95 |
| 8 | | 3.89E+Ø6 | | | |
| 18 | | 1.64E+Ø6 | | T | 12.370 |
| 12 | | 4.696+05 | | | |
| 14 | | 6.32E+Ø5 | | TAS | (M/S) |
| 16 | | 1.Ø1E+Ø5 | | | 77.72 |
| 18 | | 3.34E+#4 | | | |
| 29 | | 3.37E+Ø4 | | Z 4 | 13E-08 |
| 22 | | 3.32E+Ø4 | | | |
| 24 | | 4. | | | |
| 26 | | ø. | | | |
| 28 | | ø. | | | |
| 30 | | f . | | | |
| | LWC | 2.17E-#5 | NED | D | 6 |

PASS 2 - 200 Ft.

NARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 480 SECOND AVERAGING TYPE: RAIN INTERVAL START: *22:31:00*

| PARTICLE | SIZE | DISTRIBUTI | ONS | PRE | SS | (MB) |
|----------|-------|------------|------|-----|------|---------------|
| SIZE (NU |) NUM | BER/(N**3- | (MM) | | 102 | 2.48 |
| 2 | | 1.33E+Ø8 | | | | |
| 4 | | 1.23E+Ø8 | | PR | AL 1 | (KN) |
| 6 | | 2.90E+07 | | | | #8 |
| 8 | | 7.05E+06 | | | | |
| 10 | | 2.20E+06 | | Т | 11 | .370 |
| 12 | | 8.31E+#5 | | | | |
| 14 | | 4.31E+Ø5 | | TAS | i (| M/S) |
| 16 | | 3.67E+#5 | | | 7 | 7.99 |
| 18 | | 6.77E+94 | | | | |
| 20 | | 3.25E+Ø4 | | 7 5 | i.74 | E- 9 8 |
| 22 | | 3.31E+04 | | | | |
| 24 | | ø. | | | | |
| 26 | | ð. | | | | |
| 28 | | 9. | | | | |
| 39 | | ø. | | | | |
| | LWC 3 | 3.1/E-#5 | NED | D | 6 | |

PASS 4 -400 Ft.

MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 NAR 79 480 Second Averaging Type: Rain Interval Start: +22:58:00+

| PARTICLE | SIZE | DISTRIBUTI | ONS | PRE | SS (MB |
|----------|------|--------------|-----|-----|---------|
| SIZE (NU | D NU | INBER/(N++3- | MM) | | 1014.84 |
| 2 | | 9.05E+07 | | | |
| 4 | | 6.71E+07 | | PR | ALT (KH |
| 6 | | 1.23E+07 | | | |
| 8 | | 3.38E+#6 | | | |
| 19 | | 1.25E+#6 | | T | 12.990 |
| 12 | | 6.45E+Ø5 | | | |
| 14 | | 3.42E+#5 | | TAS | (M/S) |
| 16 | | 1.70E+05 | | | 76.8 |
| 18 | | f. | | | |
| 20 | | | | 12 | .34E-#8 |
| 22 | | 9 . | | | |
| 24 | | | | | |
| 26 | | ₫. | | | |
| 28 | | . | | | |
| 34 | | 9. | | | |
| | LWC | 1.64E-95 | NED | D | 6 |
| | | | | | |

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| PASS | 5 | - | 500 | Ft. |
|------|---|---|-----|-----|
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MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 480 Second Averaging Type: Rain Interval Start: *23:10:00*

| PARTICL | E SIZE | DISTRIBU | TIONS | PRE | SS (MB) |
|---------|--------|-----------|-------|-----|---------|
| SIZE (M | UN (U | NBER/(M** | 3-nn) | | 1011.67 |
| 2 | | 1.06E+0 | 8 | | |
| 4 | | 7.48E+Ø | 7 | PR | ALT(KH) |
| 6 | | 1.34E+Ø | 7 | | .91 |
| 8 | | 2.90E+0 | 6 | | |
| 19 | | 7.77E+Ø | 5 | T | 12.560 |
| 12 | | 4.69E+Ø | 5 | | |
| 14 | | 4.05E+0 | 5 | TAS | (M/S) |
| 16 | | 1.69E+Ø | 5 | | 77.27 |
| 18 | | 1.00E+0 | 5 | | |
| 29 | | 6.73E+Ø | 4 | Ζ3 | .82E-#8 |
| 22 | | ø. | | | |
| 24 | | ø. | | | |
| 26 | | ø. | | | |
| 28 | | ø. | | | |
| 30 | | ø. | | | |
| | I NC | 1.77E-05 | MED | D | 6 |

PASS 7 - 750 Ft.

MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 480 SECOND AVERAGING TYPE: RAIN INTERVAL START: +23:39:00+

| PARTICL | E SIZE | DISTRIBUTIO | DNS | PRESS | (MB) |
|---------|--------|--------------|------|-------|--------|
| SIZE (N | U) NU | MBER/(M**3-i | (14) | 10 | 02.73 |
| 2 | | 5.69E+97 | | | |
| 4 | | 3.83E+#7 | | PR AL | T (KN) |
| 6 | | 8.Ø2E+Ø6 | | | . \$9 |
| 8 | | 2.22E+#6 | | | |
| 10 | | 7.31E+#5 | | T 1- | 4.Ø1(|
| 12 | | 5.33E+Ø5 | | | |
| 14 | | 2.31E+#5 | | TAS | (M/S) |
| 16 | | 1.67E+95 | | : | 78.34 |
| 18 | | 3.28E+#4 | | | |
| 29 | | 3.33E+Ø4 | | 2 2.4 | 7E-#8 |
| 22 | | 4. | | | |
| 24 | | 9. | | | |
| 26 | | # . | | | |
| 28 | | ø. | | | |
| 30 | | ø. | | | |
| | LWC | 1.116-95 | MED | D 6 | |

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PASS 6 - 100 Ft.

MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 NAR 79 480 SECOND AVERAGING TYPE: RAIN INTERVAL START: +23:25:30+

| PARTICLI | E SIZE | DISTRIBUTIO | NS | PRt | .55 (MD) |
|----------|--------|--------------|-----|-----|----------|
| SIZE (M | U) NU | MBER/(N++3-M | H) | | 1026.29 |
| 2 | | 1.16E+#8 | | | |
| 4 | | 1.11E+#8 | | PR | ALT (KH) |
| 6 | | 2.55E+#7 | | | 11 |
| 8 | | 7.85E+#6 | | | |
| 18 | | 2.52E+Ø6 | | T | 11.390 |
| 12 | | 1.29E+#6 | | | |
| 14 | | 1.Ø2E+Ø6 | | TAS | 6 (M/S) |
| 16 | | 4.Ø9E+Ø5 | | | 76.49 |
| 18 | | 1.69E+#5 | | | |
| 20 | | ø. | | 27 | .55E-#8 |
| 22 | | 3.44E+#4 | | | |
| 24 | | 9. | | | |
| 26 | | 9 . | | | |
| 28 | | ø. | | | |
| 30 | | 9. | | | |
| | LWC | 3.368-#5 | MED | D | 7 |

PASS 8 - 1000 Ft.

MARINE BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 480 SECOND AVERAGING TYPE: RAIN INTERVAL START: +23:52:59+

| PARTICLI | E SIZE DISTRIBUTIONS | 5 PRESS (MB) |
|----------|----------------------|--------------|
| SIZE (M | u) NUMBER/(M++3-MM) |) 993.96 |
| 2 | 3.99E+#7 | |
| 4 | 2.82E+#7 | PR ALT (KH) |
| 6 | 6.57E+#6 | .16 |
| 8 | 1.68E+#6 | |
| 1# | 6.59E+#5 | T 14.190 |
| 12 | 3.63E+#5 | |
| 14 | 1.65E+#5 | TAS (M/S) |
| 16 | 6.59E+#4 | 78.91 |
| 18 | 3.33E+#4 | |
| 26 | 3.28E+#4 | Z 1.89E-98 |
| 22 | ø . | |
| 24 | \$. | |
| 26 | ø . | |
| 28 | Ø. | |
| 30 | . | |
| | 100 0 205-44 | MEN D 4 |

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Appendix C

Average Particle Distributions for 20-Second Pass Averages

Average particle distributions for selected 20-second periods during the datagathering portions of the flight are presented. Ten minutes of data are presented for each of the eight passes. This includes two minutes of data outside the time limit of each pass. During this time, the aircraft may have been climbing and/or turning to prepare for the next pass. The actual start time for each pass is given in Appendix B where it is listed as "Interval Start."

An explanation of some of the elements in the display can be found in Appendix B.

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 Second Averaging type: Rain Interval Starts *2211508* 28

PRESS () 1125. PARTICLE SIZE DISTRIGUTIONS SIZE(MU) NUHBER/14+3-414) 5 1.092400 4 1.092400 6 1.045407 14 1.65245 12 0.47545 12 0.47545

FLT E79-27 ON 22 MAR 79 20 Second Avepaging Type: Rain Interval Start: *22415440*

PRESS (MB) 1125-73 PR A.T (KN) --19

PARTICLE SIZE DISTRIJUTIONS Size(MU) NUMRER/(4003-MM) 2 1.225-00

1.355+00 3.145+00 1.325+07 2.475+06

FLT E79-27 ON 22 MAR 79 20 SECOND AV 46 GING TYPE: RAIN INTERVAL STARI *224164200

MARINE BOUNDARY LAYER STUDY Scatler Probe Data

MARINE BOUNDARY LAYER STUDY Scatter probe data

| PRESS (MR) | PARTICLE | SIZE | SNCIINEIelSIO | - | PRESS (MB) |
|------------|----------|------|-----------------|-----|-------------|
| 1125.67 | SIZECMU | Ĩ. | HBER/ (4**3-MH) | | 1125.92 |
| | 2 | | 2.37E+07 | | |
| PR ALTCKW) | £ | | 3.235+07 | - | PR A_T (KH) |
| - 10 | ÷ | | 1.975+07 | | 10 |
| | •0 | | 8.2.7+06 | | |
| T 10.72C | 10 | | 40+360.4 | | r 13.84C |
| | 12 | | 8.27c+05 | | |
| TAS (M/S) | 4 | | | | TAS (M/S) |
| 76.70 | 16 | | 0.153+05 | | 75.76 |
| | 18 | | . | | |
| Z 2.46E-08 | 20 | | . | | 2 5.22F-0A |
| | 22 | | • | | |
| | 24 | | | | |
| | 26 | | . | | |
| | 28 | | | | |
| | 30 | | | | |
| 0 5 | | Ľ | 2.275-15 | HED | • |

1. L BE+05

(N/S) 10.670

TAS

8.27E+05 1.235+05

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2 2.856-87

NED 0 4.452-15 Ę

MARINE BOUNDAPY LAYER STUDY Scatter froge Data

FLT E79-27 ON 22 MAR 79 20 Second Averasing typei rain Intepval start =22146140*

PRESS (MB) 1825.74

PR ALT (KH) T 10.73C TAS (H/S) 76.52

2 8.355-98

3N4980N4988

4.71E-35

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MED D 8

1.646-15

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NEO 0

4.84E-05

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PRESS (M8) 1025.57 PR A_T(KN) -.10 (H/S) 74.53 T 10.87C Z 3.49E-05 TAS PARTICLE SIZL JISFP13UTIONS SIZE(NU) NUMMER/(4*3-000) 4 3455+05 4 1.925+05 6 1.925+07 8 5.25+07 1.925+07 1.925+05 1.255+05 1.255+05 1.255+05 1.4 1.4 2.555+05 1.4 2.555+05

MARINE GOUNDAPY LAYER STUDY Scatier probe data

FLT E79-27 NN 22 MAR 79 20 SECOND AVEPAGING TYPE3 RAIN INTERVAL STARTS "224164.09

PRESS (MB) 1025.86 PR A.T (KH)

FLT E79-27 ON 22 MAR 79 25 SECOND AVEASING TYPE1 RAIN INTERVAL START1 *22115120*

PARTICLE SIZE DISTRIGUTIONS Size(MU) NUMBER/1443-944) 5 2-065-00 6 5-065-00 6 5-155-00 6 2-375-05 8 2-375-05 10 0-195-05 10 0-195-05 1.20E+05 0 N 4 9 0 0 N 4 9 0 0

T 10.69C (S/H)

76.34 2 3.835-88

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MAPINE BOUNDARY LAYER STUDY Scatter Probe Data

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E74-27 ON 22 MAR 79 Second Avgasing type1 Rain Interval Statt *22117609* 20

FLT E79-27 ON 22 MAR 79 21 SECOND AVERAGING TYPE1 RALN INTERVAL START +22117440* 899577995799570995 PRESS (MB) 1025.47 -.10 (S/H) 76.93 7 11-115 PQ A_T(KH) TAS PARTICLE SIZE MISTRIAUILON⁵ SIZF(MU) MISTRIAUILON⁶ 2 1.444240 6 3.655407 6 3.655407 12 1.655407 14 1.655405 14 8.112405 14 8.112405 14 8.112405

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PRESS (MB) 1825-61

FLT E79-27 ON 22 MAR 79 Second Averaging TYPE1 Raim Interval Start1 =223138128*

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MARINE 90JMDARY LAYER STUDY Scatter Probe Data

--11 T 18.75C

PARTICLE SIZE DISTRIGUTONS SIZE(MU) NUMBER/1403-000) 2 1413(403-000) 4 14145-00 6 3.225-07 18 2.446-05 12 0.995-05

PR A.T (KH) -.10

T 10.91C (H/S)

PRESS (MB) 1125.93

PR A_T (KN)

(N/S) 76.00

TAS

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2 8.245-98

8-13-405

2 2.346-08

77.00

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MARINE BOUNJAFY LAVER STUDY Scatter Frobe Data

FLT E79-27 CN 22 MAP 79 Sefond Avedalme type: kain Interval statt *2317828*

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PRESS (48) 1025.60

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MARINE BOUNJARY LAYER STUDY Scatter Probe Data

FLT E79-27 OM 22 MAR 79 26 Second Averasimg type1 Aain Inferal Statt *22118400*

FLT E79-67 ON 22 MAR 79 2. SECOND AVERAGING TYPEI RAIN INTERVAL START: 022120140

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

1125.43

M A. T (101)

PARTICLE SIZE DISTRIAUTIONS SIZE(MU) MUMBER(4003-041) 2 1.116-00 6 1.196-01 6 1.466-07 10 2.446-06

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PARTICLE SIZE DISTRIJUTIONS SIZE(NU) NUMBER/(M*3-MM) 2 1.325.00 6 2.785.00 16 1.450 16 1.665.05 12 0.1666 14 0.165.05

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FAATICLE SIZE DISTRIGUTOWS SIZE(MU) NUMBER/(T***7-MH) 2 305-80 4 1475-69 6 3-525-07 8 3-525-07 12 3-525-07 12 3-61 12

T 18-98C PR A.T(KH)

PR A_T (KH)

T 10.78C

PRESS (MB) 1825.64

TAS (N/S) 76.71

3-146-15

(8/8) 76.22

TAS

Z 3.42E-00

Z 2.01E-08

Z 3.20E-00

(S/W)

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3-426-15

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2.86E-35

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MED 0 6

3.68E-85

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T 18.44C

MAB 1 --- 100 ft.

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MARIME BOUNDARY LAVER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 28 SECOND AVERASING TYPE1 RAIN INTERVAL 514911 *22119148*

PRESS (MB) 1025.69

PRESS (MB) 1025.07

PAPTICLE SIZE MISTRIBUTIUNS Size(Mu) Number/(4003-Mm) 2 1.056408

FLT E79-27 ON 22 MAR 79 20 Second Averaging Type: Rain Interval Statt • 22:20:209

FLT E79-27 DN 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIN INTERVAL START +2211946*

MARINE BOUNDARY LAYER STUDY Scatter Probe data

MARINE BOUNDARY LAYER STUDY Scatter probe data

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. . . -.10 T 10.98C

PR ALT (KH)

PARTICLE SIZE DISTRIJUTIONS Size(NU) NUMBER(14495-MM) 4 1.0559-06 4 1.0926-07 6 9.065-05 1 2 2.472-06 1 2 2.472-06 1 2 0.

-.10 PR A_T(KH)

1.215+08 3.04c+07 1.075+07 4.935+66

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T 10.40C

TAS (H/S) 75.87

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TAS (M/S) 75.92

8.245+65 8.245+65 3.195+65

8 3N3096N3996. 4444NNNNNN

2 8.745-09

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2 1.252-07

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| PRE55 (MB) | 1825.69 | | PR A.T (KH) | -1. - | | T 10.67C | | TAS (4/5) | 76.64 | | Z 5.15E-04 | | | | | | 0 e |
|---------------|---------|----------|-------------|------------|----------|----------|----------|-----------|----------------|----|------------|----|-----|----|----|----|----------|
| SMC | Ĩ | | | | | | | | | | | | | | | | 1 |
| E MISTRIJUTIC | | 1.,46+88 | 1.215+88 | 2.85 - 487 | 9.77E+06 | 2.44-406 | 9.155405 | | 8.146405 | • | - | | .0 | .0 | 9. | | 3.255-15 |
| 212 | 2 | | | | | | | | | | | | | | | | L |
| PARTICLE | SIZECHU | 2 | | ھ | ٥ | 10 | 12 | 4. | 9 1 | 18 | J7 | 22 | , t | 26 | 92 | 36 | |

MARINE BOUNDARY LAVER STUDY Scatter Proge Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE1 GAIN

| 19161 | PRESS (MB) 1825 (MB) | PR A.T(K4) 10 | T 13.78C TAS (H/S) | 76.71 7 3.32E-09 | |
|-----------------------|---|------------------|-----------------------|---------------------------|---------|
| 11Ex VAL 514 271 -224 | 112. UISTRI 3UTIONS NUMBER/(4003-4M) 0.005407 | | | •••• | - |
| | PARTTCLE : SIZE(MU) | . . | • • • • • | 9 # # N 7 7 N 7 7 N | 4 6 8 G |

| E A | 22 |
|---------------------|------------------------------------|
| 14×40 | n 1 1113 12113 12113 |
| INF 90JN 50A71 F | T 279-27 OND AVE 9 EH VAL ST |
| 4 4 1 | SEC |
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| NARINE BOJNJAK - SCATER SCATER | FLT L79-27 CN SECOND AVE7451N5 INTER VAL STA2TE |
| | 20 |

MARINE BOJNJAPY LAYËR STUDY Scatiër probe data

| 2 14 + 5 7 7 | FLT F79-27 ON 22 M 20 SFCONJ AVERASING TYP Intepval Starts *228 | 85.79 61.79 20140 20140 | Z | |
|----------------------|---|----------------------------------|--------|-------------|
| ESS (44) 11,65.63 | PARTICLE SIZE DISTPIGUTTONS Size(MU) NUMBER/ 4453-440) | P.R. | SS _ | ~ |
| A_ T (KM) 13 | | a, | | _ |
| 10.745 | | - | 11, | - |
| 141°52 12°44 | 14 0.175*87 14 0. | TAS | 57 | T 40 |
| 2 . 52E-05 | | 9 2 | . 9 31 | 441 |
| | 200 200 30 30 0 0 | | | |

PRESS (49) 1325.32 PR A. T (KH) -.10

| P2ESS (M9) 1365-63 | P2 A_T(KM) 13 | T 10.74C | TAS (#/S) 75.64 | Z 2.52E-08 | • 0 |
|--|------------------|----------|---|------------|----------------------|
| ZE DISTRT BUTIONS NUMBER/ (4003-MM) 3.1.5406 | | | 8 - 7 9 - 1 - 6 5 9 - 8 - 7 9 - 1 - 6 5 8 - 8 - 7 9 - 1 - 6 5 | | C + |
| PAGTICLE SI SIZE(MU) Z | 1 2 0 1 | • • • | | | 20 20 20 20 |

TAS (M/S) 76.19

Z 0.93E-09

MED 0 6

6.54E-J6

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#ED 0 6

3.18-15

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T 11.235

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PASS 1 --- 100 ft.

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MARTNE BOUNDARY LAYER STUDY Scatter Probe Data

MARIMÉ BOUNDARY LAYER STUDY JCATTER PROBE DATA

FLT E74-27 ON 22 MAR 79 SECOND AVE PAGIMG TYPE1 RALN INTEPVAL START *22121488*

2

FLT E79-27 ON 22 MAR 79 20 SECOMU AVERAJING TYPEI RAIN INTERVAL STARTI *2212146*

PRESS (MB) 1125.71

FLT ET9-27 DN 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIM INTERVAL STATT: *22422128*

MARINE BOUNDARY LAYER STUDY Scatter probe data

- 11

PR ALT (KH)

(S/H)

TAS

76.49

Z 1.63E-07

11.450

PRESS (HB) 1125.70 -.18 12.27 T 11.04C Z 2.18E-07 PR A. T(KH) « TAS **4**€C 0 5.25 F - DF 3N3985N3983 PRESS (MR) 1825.57 - - 10 (5/#) 76.39 T 11.33C PR A.T (KH) Z 5,63E-09

TAS

PARTICLE SIZF UJERPJUTTONS SIZE(NU) NUMBER/14943-3NN) 5126(NU) NUMBER/14943-3NN) 6 1.145-67 6 1.252-07 6 3.2265-005 10 3.146-45

PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER(M**3-MM) 2 14152+08 4 1235+08 6 2.612+08 10 8.152+06 12 8.145+05 12 8.145+05 14 8.175+05 14 8.175+05 1.145+45

MED 0 3.705-15 R

L NC

#ED 0 6

7.42--16

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MARINE GOUNJARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 SECONO AVERAJING TYPEA RAIM INTERVAL STATT: 972422440*

PRESS (MB) 1025.57

r 11.24C

PR A.T (KH)

..376+88

3.10E+07

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PR ALT (KH)

1.235+08

r 11.07C

(N/S) 76.39

TAS

1.2725+87 1.632+86 2.455+86 1.645+86 3.275+76

Z 1.61E-87

2 1.125-97

2 7.856-05

(H/S) 76.10

SVI

(H/S) 75.84

TAS

• 0 03W

5.785-15

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MEC 0 7

5.25E-35

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#ED D 8

3.326-35

2

PARTICLE STZE DISTRIJITIONS SIZE(MU) NUM9ER/(M003-MM) 2 1.25E405 PRESS (MB) 1325.57 PAPTICLE STYL UISKIGUTIONS SIZE(HU) NUMREP/(4++3-44)

FLT 279-27 JN 22 MAR 79 20 SECMUD AVEDAJING TYPEI RAIN IMTEAVAL STATTI 022122440

MARINE BRUNDAEY LAVER STUDY Scatter Proge Data

MARINE BOUNJAPT LATER STUDY Scatter Froge Data

FLT E79-27 CN 22 MAR 79 28 SECOMD AV-RASING TYPL9 RAIN • INFERVAL STATT • 22321428*

PRESS (MB) 1825.75

PR A.T IXMI

ARTICLE SIZE OISTOIDUES (MM-EDOIDUES) SIZE(MU) MUMBER/IMOS

2.551+07 2.551+07 2.56+07 1.311+07 3.281+07 3.281+05 8.2.5+05 3.271+05 3.271+05

- . 10

T 11.12C

MAR 1 --- 100 ft.

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 28 SECOMD AVERAGING TYPE1 RAIN INTERVAL START +22123160+

PRESS (MB) 1225.93

-.10

AL T (KN)

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T 11.08C

FLT F79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE! RAIN INTERVAL START: *22123140* PAR SI

PRESS (MB) 999.36

FLT E79-27 ON ZZ MAR 79 20 SECONJ AVERAGING TYPE1 RALM INTERVAL START1 "ZZ 1201200

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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.12 T 14.83C PR A.T (KH)

| 1101 | 5776 | DISTATON | PAE | SS (MB) | PARTICLE | STZE DISTRIBUTIO | ŝ |
|------------|------|----------------|-------|---------|------------|------------------|---|
| TE (MI) | | BER/ (M**3-HM) | | 1115.73 | SI ZE (MU) | NU 186R/ ニュード | î |
| | | 9.426+07 | | | ~ | 2.985+07 | |
| J - | | 5.845477 | đ | A_T(KH) | Ł | 2.975+07 | |
| • | | | | 02 | 9 | 4,585+06 | |
| • • | | 104001 | | | - | 3.05E+06 | |
| • • | | 1.505446 | - | 13.630 | 10 | 7.666445 | |
| | | | | 1 | 12 | . . | |
| 7 | | 7.9AF+05 | TAS | (S/H) | 14 | 0. | |
| | | | | 78.04 | 16 | . | |
| | | | | | 18 | • | |
| 0 0 | | | 7 2 | | 20 | | |
| | | | | | 22 | • | |
| 4 0 | | | | | 54 | ; | |
| | | ; _ | | | 26 | • | |
| | | • | | | 82 | а. | |
| | | | | | 30 | 0. | |
| 2 | LHC | 1.435-05 | 0 034 | 5 | | LWC 6.725-16 | T |
| | | | | | | | |

10.77 (2/H)

TAS

2 1.0 46-07

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(W/S) 61.61 Z 4.67E-09

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FLT E79-27 ON 22 MAR 79 28 SECOMD AVERAGINS TYPE: 241 M INTERVAL START: *22:23:23*

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T 11.49C PR A. T (KH) PARTICLE SI7: JISTRIJUTIOMS SIZE(MU) MUMBLR14403-041) 5 11325408 6 11325408 6 11485407 6 7.995407 10.995407 10.995407 10.995407 10.995407 10.995407

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R STUDY

PqESS (#8) 1825-44

FLT 579-27 ON 22 MAR 79 20 SECOND AVERASING TYPER RAIN INTERVAL STATT *221241"" MARING 900NDARY LAVER STUDY Scatter Probe Data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 26 SECOND A459451MG TYPE1 RAIN INTERVAL 514311 225244409

PRESS (MB) 1003.63

PRESS (MB) 397.53

.13 T 14.43C

PR A.T (KN)

PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER(40003-MM) 2 314012-07 4 2.912-07 6 3.922-06 8 3.666 406 1 1.409 406 (N/S) 79.73 T 14.09C PR A_T(KH) 6. TAS

PAPTICLE SI76 DISTP13UTIONS SIZE(MU) NUMBER(14+0.5-44) 5.22(MU) NUMBER(14+0.7 4 5.225(07 6 3.146-06 3 146-06 10 2.345-06 12 1.566-06 ...

Z 1.96E-08

• MED D 1.186-05

88847088572888 81872575

2 6.75E-08

14.87 (2/M)

TAS

1.532+06

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(H/S) 84.26

TAS

2 6.646-09

MED 0 7

7.586-36

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2.93E-05

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MARINE BOUNDARY LAYER STUDY Scatter Probe data

FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Start: *22:31400*

FLT 579-27 DN 22 MAR 79 20 Second Averasing type: Rain Interval Statt +22131940* MARINE BOUNDARY LAYER STUDY Scattfr probe data

PRESS (MB) 1122.30 PR ALT (KH) -.00

FAATTCLE SIZE DISTRIJUTIONS SIZE(MU) NUMBER/(44*3-MM) 2 1.295-408 4 1.175-408 6 3.475-40 8 5.505-406

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE: RAIN INTERVAL START: +22132120+

MARINE BOUNJARY LAYER STUDY Scatter Probe Data

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TAS (H/S) 79.27

7.8AE+05 0.

8895798957996 80002249596500

Z 2.17E-08

MED 0 5

2.51E-05

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F 11.83C

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| NS PRESS (MB) | H) 1022.31 | | PR ALT(KH) | 60 | | T 12.105 | | 1A5 (M/S) | 76.86 | | Z 3.32E-D3 | | | | | | |
|------------------|------------------|----------|--------------|----------|----------|----------|----------|-----------|-------------|----------|------------|----|----------|------------|----|----|--|
| OITUEINISIG | JABER/ (N** 3-N | 1.135+08 | 9.74E+07 | 1.796+07 | 1.625+06 | 8.14°+05 | 8.195+05 | 1.615+06 | | | • | 0. | | | | | |
| PARTICLE SI7 | SIZE (HU) N | 2 | ŧ | 9 | - | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 90 | |
| PRESS (MB) | 1022.74 | | PR A. T (KH) | 00.1 | | T 11.94C | | TAS (N/S) | 76.92 | | 2 5.94E-08 | | | | | | |
| ZE DISTRIBUTIONS | NUMBER/(4++3-MM) | 1.27E+08 | 9.48E+07 | 2.275+07 | 5.65E+06 | 4.87E+66 | 1.625+06 | . | 8.0 35 + 05 | . | o. | 0. | . | 0 . | | | |
| E 51. | ŝ | | | | | | | | | | | | | | | | |

| runv | 79 881 N |
|--------------|--------------|
| ATA | MAP 1 7 0 |
| LAY: BE C | 22 |
| PROI | NO |
| BOUNS | 9-27 |
| RINE | .T E7 |
| Ă | SEC |

FLT 579-27 ON 22 MAP 79 20 SECOND AV2PASING TYPE: RAI! INTERVAL START +22131120+

MARINE BOUNJARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 Second Ave?451ng type: Rain Interval Start: *22:132:466*

PR ALT (KH) -.07 PARTICLE SIZE DTSTRIJUTIONS SIZE (NU) NUMBER/(M**3-MM) 2 14-85-48 4 12-265 408 6 2.4445-407 8 9.465-46 12 3.465-46 12 7.905-405 14 7.915-405

> PRESS (MB) 1322.65 PR ALT(KH) -.08

PARTICLE SIZE DISTRTUTIONS SIZE(MU) NUMBER/(4+3-7HM) 4 8.095+07 6 2.07+07 6 2.707+07

PRESS (N8) 1022.48

PR ALT (KH) -.08 T 11.63C 47" 11 11 - 14 Z 8.77E-05

PARTICLE SIZE DISTPIJUTIONS SIZE(MU) NUHERA(1903-14M) 4 1.1.1.4.5.08 6 2.905.07 8 1.4.5.07 10 3.22.5.07 12 1.5.15.06

PRESS (MB) 1022.19

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE: RAIN INTERVAL START: *22132440*

MARINE BOUNTARY LAYER STUDY Scatter Probe Data

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89957999957500 87775759 (H/S) 78.52 T 12.255

TAS

1 • 5 9£ + 06 90+36c+1

2

TAS

1.625+06

(M/S) 78.93

TAS

2 3.675-08

MED D 6

3.285-05

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T 11.69C

Z 6.51E-03

MED 0 6

2.50F-05

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4E0 D 7

3**.8**5E-05

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MARIME BOUNDARY LAYER STUDY SCATTER PROBE DATA

FLT E79-27 ON 22 MAR 79 20 Second Averaging Type; Rain Interval Start: +22:33100*

FLT ET9-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE4 RAIM INTERVAL START +22133440*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

PRESS (MB) 1022.60 PR A_T(KN) -.08

PARTICLE SIZE JISIRTGUTIONS SIZE(MU) NUMBER(144-3-MM) 4 1.105-00 6 1.4445-00 6 1.4445-06 6 7.005-17 8 7.295-06 10 2.442-05

PRESS (M8) 1022.85 PR A. T(KM) -.08 11.410 (H/S) 77.51 Z 4.68E-09

PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUNBER/(4443-444) 2 2 1.03E+U8

1.455403 2.975403 8.875406 4.035406

FLT E79-27 ON 22 MAR 79 20 Second Averaging Type1 Rain Interval Statt +22134+204

MARINE BOUNDARY LAVER STUDY Scatter Probe Data

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8.152+05

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7.185-95

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MED 0 6

4.10E-05

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PR ALT (KH) -.08 PRESS (MB) 1022.51 (S/H) T 11.83C Z 6.96E-08 TAS PARTICLE SIZE DISTRIGUTIONS Size(MU) NUMBER/(M++3+MM) 7.895+05 7.895+07 7.895+07 7.895+07 7.895+05 7.895+05 7.895+05 7.302+05

MARINE BOUNDARY LAYER STUDY Scatter Froge Data

FLT E79-27 ON 22 MAP 79 20 Seconj Averajing type: Rain Interval Statt: *22:3322"*

PAATTCLE SIZE JISTRIAUTIONS SIZE(MU) NUMBEA/(M++3-MM) SIZE(MU) NUMBEA/(M++3-MM) 4 1.145E408 6 2.996-408 1 0 7.994E405 1 2 0 7.994E405 1 2 0 7.994E405

PRESS (MB) 1022.44 -.05 PR ALTIKM

FLT 79-27 ON 22 MAP 79 24 SECONJ AV-243ING TYPE1 RALN INTE7VAL STATT *22134100*

MARINE BCUNDIRY LAVER STUDY Scatter probe data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT £79-27 CN 22 MAR 79 26 SECOND AVERASING TYPE: RAIN INTERVAL START *22354440*

PRESS (MB) 1022.29

PR ALT (KM) -.08 PRESS (MB) 1022.64 r 11.43C

PR ALT(KM) -.07

T 11.30C

(M/S)

TAS

*.34E+05

2 2-11E-07

965+05

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3.56E-05

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MED O

2.276-35

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3+566-05

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(M/S) 76.29 Z 1.08E-08 TAS

PARTICLE SIZE DISTALAUTIONS SIZE(MJ) NUMBER/(4003-000) 4 1.225-06 6 3.275-06 14 2.76-07 8 3.275-06

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Z 1.48E-07

(N/S) 79.58

ZAS

.625+05

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T 11.47C

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MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 Second Averasing type: Rain Interval Statt: *22135100*

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PRESS (MB) 1022.55

PKESS (MB) 1022.42 PK A_T(K4) -.03

FLT E79-27 ON 22 MAR 79 24 SECOND AVERASING TYPE1 RAEN INTERVAL START1 *22136120*

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE1 RAIN INTERVAL STA4T1 *22135440*

MARINE BOUNDARY LAYER SFUDY Scatter probe data

MARINE BOUNDARY LAYER STUDY Scatter probe data

AL T (KM) -.05

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(S/H)

TAS

Z 3.646-05

Z 5.175-09

Z 1.95E-09

(H/S) 79.12

TAS

11.230

MLD 0 6

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460 0

3.61 5-05

LNC

MED D 5

2.515-05

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11.10C

PARTICLE SIZE DISTRIAUIIONS SIZE (MJ) NUMBER(IM+2-MK) 2 1.287-10 6 1.446-07 6 2.9146-07 8 9.44906 11 3146-06 14 7.825-105 14 7.825-105 14 0.825-105 14 0.825-105 14 0.825-105 14 0.825-105 16 0.90 200 20 0.90

PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER/144/2008 4 144/2008 6 2.464-07 8 2.464-07 8 2.464-07 8 2.464-07 112 31.564-05 112 3.1564-05 14 7.884-45 14 7.884-45 14 0. 26 0. 27 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 26 0. 27 0. 26 0. 26 0. 26 0. 27 0. 26 0. 26 0. 26 0. 27 0. 26 0. 26 0. 27 0. 26 0. 20 PRESS (H9) 1022.06 AL T (KH) -.07 (H/S) 78.84 T 11.08C TAS č PARTICLE SIZE DISTRIAUTIONS SIZE (MU) NUMBER(1949-3-MM) 2 1.354-00 6 2.534-00 8 7.354-06 10 2.554-06 114 0. 144 0. 144 0. 146 0. 262-05 146 0. 262-05 24 0. 200-22 200-22 **600406904000** Munuhahan

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MARINE BCJNJÄRY LAVER STUDY Scattér probe dafa

FLT E79-27 ON 22 MAR 79 Second Averaging Typet Rain Interval Statt: *22:35820*

PRESS (M9) 1022.37 PARTICLE SIZE DIST PIJUNS SIZE (MU) NUMER/(4**3-MH) 5 2 41.275-08 6 31.85-07 8 1.175-08 8 3.185-07 8 1.035-07 10 7-916-07 12 1.585-06 12 1.585-06 16 0.

MARINE BOJNDAFY LAYER STUDY Scatter proge data

FLT E79-27 CN 22 MAR 79 26 SECOND AVERASING TYPE: 241N INTERVAL START: 221361"u*

MARINE DEJNDARY LAVER STUDY Scatter Frogl Data

FLT E79-27 ON 22 MAP 79 24 SECOND AV-RAIING TYPE: RAIN INTEPVAL START: "22:35140"

PRL 55 (MB) 1) 22.60

PARTICLE SIZE SIZE (MU) NUP

PRESS (MB) 1022.34

SIZE UISTATAUTIONS NUMBER/ (4**3-MM)

PARTICLE S SIZE (MU)

1.37c+08 1.135c+08 2+435+07

A. T (KH) -.0A

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AL T (KM) --85

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(H/S) T 11.03C

TAS

114: DISTRIJUNS NUMBER/ 444 3-11 144 244 4 142 7440 249 7407 249 7407 249 244 16406 244 16406 04 04 04 04 04 04

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PR A. T(KH)

1 11.260

5.519+05 3.146+06 7.846+05 7.849+05

2 3.02E-0A

Z 3.34E-08

800400004000 MVN/N/N/M

2.425-08

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(S/M) 78.99

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11.120

(N/S)

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MED 0 6

2.87E-05

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT ET9-97 NN 22 MAR 79 Second Avlaging type: Rain Interval Statt: *2213790**

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FLT E79-27 ON 22 MAP 79 20 SECOND AVERAJING TYPE1 RAIN INTERVAL START *22137440* MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT ET4-27 ON 22 MAR 75 20 Second Averaging Type: Rain Interval Start: *22338420*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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68.77 12189 --03 T 10.97C PRESS 148-PR ALTCKHI TAS E SIZE DISTRT JUTLONS (U) NUMGER/14**3-MM) 1.259-248 1.365-48 3.125-47 9.592-40 9.592-404 PARTICLE S SIZE (MU) ھ A. T (KH) -.05 (M/S) 76.60 PRESS (HB) 1322.74 T 11.06C

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PARTICLE SIZE UISTRIJUTIONS Size(MJ) NUYBER/14*3-44) 2 11.45200 4 1.45200 6 7.562007 8 7.312405 12 9.132405 12 9.132405

PR A.TIKH

AATICLE SIZe JIST PIGUTIONS SIZE (MJ) NUMBER/ N**3-MM) 2 1.522+08 4 1.345+08 6 1.075+05 18 5.675+06 18 5.675+06 18 5.675+06 12 2.435+06 12 2.435+06

T 10.92C

PRESS (MB) 1822.58

(H/S)

TAS

2 1.136-07

1.522+56 8.115+05

MED 0 7

4.235-05

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Z 4.23E-05 MED 0 5 7.995+05 3.145-15 CR0

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MARINE BCJNJAPY LAVER JIUOV Scatteg Probe Data

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FLT F79-27 NN 22 MAR 79 20 SECOND A22045145 TYPE4 241N INTERVAL STATT *2213712.4

P4ESS (M9) 1122.70

MARINE HOUNJARY LAYER STUDY Slatter Proge Data

FLT 0.79-27 ON 22 MAP 79 2. Second Augeating type: Fain Imferval Start: 22438100

PRESS (M9) 1022.56

-.08

PR ALTIXH

PARTTCLE STZ. UISIFTJUTIONS SIZE(MU) NUMERCY(99.3-44) Z 1.775.4.5 4.5.575.47 6 3.465.47 8 5.54.6 14 4.4.5 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 12 8.65.45 13 8.65.45 14 8.65.45 15 8.65 16 8.65.45 17 8.65 16 8.65 17 8.65 16 8.65 17 8.65 17 8.65 17 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.65 18 8.55

--09 T 10.95C

PR A.T(KH)

FARTICLE SIZE UISTRF3UTIONS SIZE(4U) NUMBER(440.3-4H) SIZE(4U) NUMBER(440.3-4H) 6 1.482642 6 1.482642 8 2.446646 16 2.446646

T 11.06C

FLT E79-27 UN 22 MAR 79 20 Second Averasing type: Rain Interval Statt: +2238140*

MARINE 900NDARY LAYER STUDY Scatter Probe Data

PAATICLE SIZE JISTAT9UTLUNS Size(mj) Number(1993-MM) 2 2 1.22=00 4 1.57=400 5 3.954-05 10 0.0235+06 10 0.0235+06 10 0.0235+06

PRESS (49) 10 22 . 14

(H/S)

TAS

1.615+06

T 10.85C -...

PR A.T(KH)

3.31E-08

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Z 2.46E-05

(H/S) 77.37

TAS

...

(M/S) 76.93

TAS

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14444000014000 101000000

2 7.23E-36

8.14:405

MED D 5

3.416-05

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MED 0 5

3-3+5-35

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MED 0

3.172-35

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MARINE BOUNDARY LAYER STUDY Scatter Frobe Data

FLT E79-27 ON 22 MAR 79 26 Second Avgaaing typei rain Interval statt *22139400*

PRESS (H8) 1,20.99 PAPTICLE SIZE DISFRTULIONS SIZE(MU) MUMBER(14003-4M) 2 2.55.47 4 2.595407 6 1.342427 8 3.2.65966 1.44247 8 3.2.65966

FLT 279-27 ON 22 MAR 79 20 Second Averajing type: Rain Interval Start: *2233944*

MARINE BOUNJAPY LAYER STUDY Scatter Frobe Data

PRESS (M9) 985.39

FLT 579-27 ON 22 MAR 79 24 SECOND A42R4JING TYPE1 RAIN INTERVAL ST43T1 9221491209

MARINE BOJNJAPY LAYEM STUDY Scatter Probe Data

FR A.T(KH)

PATICLE SIZE JISIRT3UTIJUS SIZE(MU) NUMBEL(14003-4M) 2 2.37-006 4 4.55-006 6 1.577-06

(1/2)

In

4c0 0

5.27E-J7

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9.222-17

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MARINE BOUNDARY LAVER STUDY Scatter Probe Data

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T 13.550 • 23

(H/S) 82.49 PRESS (MB) 1300.73 : T 12.69C PR ALT (KM) TAS ; PARTICLE SIZE JISTRIJUTIJNE SIZE(MU) NUMBEZ/(1443-MM) 2 772-405 4 6.137-405 6 1.54476 6 4 9 8 3 N 4 9 8 5 12 PR ALT (KH) -.06 T 10.57C (M/S) 78.67 Z 3.52E-09

TAS

8.032+05

4c0 0 8 1.345-95

MARINE BOUNJAPY LAYER STUDV Scatter Frjbe Data

FLT =79-27 ON 22 MAR 79 20 second Avepasing trpei rain Interval start =2244.004*

MARINE BOUNDARY LAYER STUDY Scatier Froge Data

| 14F 79 16 F Al N 139120* | PRESS (MB) 1111.75 | PR ALT (KH) .81 |
|--|---|----------------------|
| LT E79-27 DN 22 M Cond Averasing Typ Terval Statt *221 | 125 DISIRT3UTIONS NUMBER/(44443-444) | 1.425+07 3.415+05 |
| 2 S N N N N | PAKTICLE S SI ZE (MU) | 9 ድ ዞ |

| PRESS (M9) 990.55 | PR ALT(KH) •19 | T 13.720 | TAS (M/S) 03.49 | • n Z | 10 D 7 |
|-------------------------------------|----------------------------------|----------|--------------------|----------------------|------------------------|
| CITLE I TITLONS CHH-E +++ / ABEM | 7.32#+05 4.558+05 4.558+05 | 0. | | •••• | а. 1. 8.52£-37 М |
| PARTICLE SIZE Size(MU) NU | (1 + 10 l | | N 2 9 9 | 5 0 5 0 1 0 0 5 1 | 20 28 30 LMC |

10.790 (4/5)

TAS .--

7-615+05

FLT E79-27 ON 22 MAR 79 20 Second Aveq43Ing TYP26 Rain Interval Start • 22446440* MED 0 PARTICLE SIZE UISTRT3UTIONS SIZE (HU) NUMBER((***2-4M)) 2 20053-4 6 7.656-4 8 7.656-4 10 7.656-4 16 0. 16 0. 16 0. 22 0. 22 0. 22 0. 20 2. 20 5 2.695-36 ĽKG

PRESS (MB) 384**.88** T 13.44C (H/S) 81.87 PR ALT(KM) Z 3.35E-09 TAS

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MED 0 6

3.47E-76

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Z 5.62E-09

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MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 SECOMU AVERASING TYPE1 RAEM INTERVAL START *22143160*

PARTICLE SIZE NISTRIGUTIDNS 512E(MU) NUMBRR/(4++3-4M) 2 2

FLT E79-27 ON 22 MAR 79 Second Averating type: Rain Interval Statt *22143143* MARINE BOJNDARY LAYER STUDY Scattér proge data 20

ELT 579-27 ON 22 MAP 79 20 SECOND AVERAGING TYPE: KAIN INTERVAL START: *2844420*

MARINE BOUNDARY LAVER STUDY Scatter Probe Data

POESS (M9) 1018.98 PR A. T(KH) -.05 (M/S) 76.70 T 11.310 Z 0.71E-09 TAS

MED D 1.562-75 Ľ PRESS (M9) 1116.61 PR ALT (KH) -.03 (H/S) 75.26 T 10.78C

TA5

1.135.408 1.745.437 2.487.406 3.3154.6

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Z 1.20E-08

0 N # 0 0 0 N # 0 0 0

PARTICLE SIZE UISTRT JUTIJNS SIZE (MU) NUMBER/(440 3-4M) Z 1.225 4.0 4 6.477 407 6 5.552 4.6 8 3.15 4.0 303000003000 MANNANANAN 4

(S/H)

TAS

1.595+00

2 2.345-05

PRESS (49) 1018.78

-.05 r 11.580

PR ALT (K4)

1⊾G 0 1.53--15 LHC

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MARINE BCUNDAPY LAYER STUDY Scatter Probe UATA

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FLT E73-27 ON 22 MAK 79 20 SECOND AVEPASING TYPE1 RAIN INTERVAL START *22144140*

FLT <u>-</u>79-27 nn 22 mbr 79 20 second Averasing type1 3a[n Inteq val start +2214480.4

MARINE GOUNDARY LAYER STUDY Scatter P909e Data

MARINE BOUNJAAT LAVER STUDY Joattep Frogé Data

PARTICLE 512_ DT57713UTIONS 5176 (MU) NUMBER744 4 1.1.4500 6 1.9.1.4500 8 3.95706 10 3.16506 12 7.855405

PRESS (48) 1019.75 -.05 T 11-59C PA A_T(KM) (3/1) TAS

--05

T 11.360

1019.05

PRESS (MB) PR ALT (KM) (S/H)

ZNS

Z 1.996-08

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1.0 0 5

2.30E-35

L NC

MED 0 11

1.972-15

R

MED 0 4

1.01E-15

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77.69 2 6.49E-03

7.335.405 8.135.405 1.601.405 8.1561.405 8.1561.405

PATICLE SIZE JISTRTJUTIONS SIZE(HU) NU49ER/(4**3-4M) 2 1.952+18 4 5.525+07 7.217+.6

(1/5) PRESS (H3) 1018.85 -.05 T 11.09C A_ T (KH) FLT 779-27 ON 22 MAP 79 24 SECONP AVEPASING TYPE: KAIN 14762441 STA4T: *228451500 ğ

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7.32c-09 TAS PAPTICLE SIZE JISTRIBULIJNS Size(MU) NUMSFR/(4**3-4M) 2 1.112-48 4 1.197-408 6 4.1.546 8 4.1.546 10 8.215465 • ;;;

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2.005-35

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 28 SECONJ AVERAGING TYPE: RALN INTERVAL START: +22445160*

FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Kain Intequal Start: *22845140* MARINE BOUNDARY LAYER STUDY Scatter Probe Data

PRESS (MB) 1018.86 PR ALT (KM) -.05 (H/S) 78.12 T 11.56C Z 6.16E-08 IAS PARTICLE SIZE MISTRIJUTIONS SIZE(MU) NUMBER(40+3-24H) 2 14422-44 4 11175-08 6 2417 5-07 8 14555-06 145525-06 140 2395-46 -30E+05 3.11T+05 PRESS (M9) 1119.50 AL T (KH) -.05 (N/S) T 11.40C Z 5.15E-D3 TAS

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-- 05 (H/S) 78.67 11.750 PR ALT(KM) 2 3.996-08 TAS -PARTICLE ST2E DISTRIBUTIONS SIZE(MU) NUMBEP/(40034MM) 2 1.265468 4 1.325408 5 2.775408 8 3.975406 7.325+C5 1.585+06 <u>ہ</u>

PRESS (MB) 1118.00

FLT E79-27 ON 22 MAR 79 20 Second Averajing type: Ratn 14teval starte +>2445420+

MARINE BOUNJARY LAYER STUDY Scatter Probe data

MED 0 5 2 . 34 £ - 15 Ę

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2.97 - - 15

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#E0 0

3+63c-15

LNC

8995799995775 80878995775

FLT 279-27 ON 22 MAR 79 20 Second Averating type: Rain Interval Jiarti +22146666 MARINE BCJWJAPY LAYEP STUDY Scatte? probe data

19-87 78-64

TAS

1.595+06

45.87 78.54

TAS

2 3.465-88

1.41E-08

003400003400 1111110000

4.496-08

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(H/S) 77.42 T 11.60C

TAS

MED 0 6

2.41E-05

L NC

McD 0 5

2.39F-35

LHC

MED 0 6

3.48£+85

LIG

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ALTCKN

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-.05

-.05

PR ALT (KH)

11.50C

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.93E+05

1 12.430

10 10.91

PRESS (MB)

FAPTICLE SIZE JISTFT JUTIONS SIZE(MU) NUMBER/ (4** 3+MM)

PRESS (MB) 18.74 PAATTCLE SIZ^C DISFRENTUTIONS SIZE(MU) NJMBER/(4**3-44) 2 11.55-11 4 11.155-11 6 3.125-10 6 5.255-10 7.555-10

FLT E79427 CN 22 MAP 79 20 SECONT AVEPAGING TYPE1 RAIN INTEOVAL 514311 *22146140* MARTNE BOUNJAPY LAYER STUDY Scatter froge data

MARINE BOUNJARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 Second Ave 46146 77PE3 KAIN 1MTE#VAL 574373 *22345320*

PRESS (MB) 1019.49 PARTICLE SIZE DISTRIGUTIONS SIZE(MU) NUMBER/(M++3-MM) 2 1.345+08

PR A.T(KH) 1.26140 2.73540 4.01540 2.42546 2.425466 2.425466 3.17465

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MARIME BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAK 79 20 Second Averaging type: Rain Interval Statt *22147100*

FLT E79-27 ON 22 MAR 79 20 SECOMD AVERASIME TYPE' RAIN INTERVAL START! *22947448*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

PRESS (H9) 1010-00 PR ALT (KH) -.05

FLT E79-27 OM 22 MAR 79 20 SECOND AVE445ING TYPE: RAIM INTERVAL START: "22146128"

MARINÉ BOUNJARY LAYER STUDY Statter probe data

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40.77

TAS

3.12E+u5 9.105+05

2 1.466-07

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3.142-35

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2.995-75

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MED D

1.956-35

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T 12.03C

PAKITCLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER/(M**3-MN) Z 1.952-08 4 1.062-08 6 2.512-08 8 4.052-08 10 0.072-05 PR ALT(KM) -.05 PRESS (M9) 1019.21 (M/S) 76.27 T .11.44C Z 3.52E-08 TAS . TAS (M/S) 77.18 PRESS (MB) 1010-84 PR ALT (KH) T 12.55C Z 1.59E-08 PARTICLE SIZE DISIRIGUTIONS SIZE(MU) NUMBER/(M**3-MM) 2 1445-48 4 9.465-07 6 2.425-467 10 8.055-465 12 14 8. 14 8. ; •

FLT E79-27 DN 22 MAR 79 Second Avepaging type1 Rain Interval Statt "22147120" MARTNE BOUNJARY LAYER STUDY Scatter Probe Data

FLT 579-27 CN 22 MAR 79 20 SECOND AVERASING TYPE'S KALN INTEXVAL STARTI *22446103* MARINE BOJNJARY LAYER STUDY Scatter Proge data

PARTICLE SIZE (MU) ÷ PRESS (49) 1149-11 -.05 PP. ALT(KM) PRESS (M9) 1118-89 PR ALT (KH)

. ... (H/S) 76.02 11.950 TAS PARTICLE STLE DIST PIGUTIONS SIZE (NU) NUMBER/(903-018 5 1.465-08 6 2.15-08 8 2.355-07 10 3.255-05 10 3.255-05 12 3.55-05-05 12 3.55-05 12 3.55-05-05 12 3 • • .

T 11-690 PAPTICLE SIZE DISTRTAUTIONS SIZE (MJ) NUMBER/CT005-00 2.0202-02 4 1.46540 8 2.4455405 1.4465405 10 2.4445405 12 8.145405 12 8.145405

2 1.326-08 1-636-08 N

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TAS (H/S) 76.71

(S/H) 17.28

TAS

7 3,64E-88

MEO 0 6

2.325-35

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2.586-05

L NG

NED 0 5

2.45E-85

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1.615+06 å

-.05

AL T (KM)

T 12.27C

| E RAIN 48140* | PRc.5 (M9) 1119.17 | PR ALT (KM) |
|--|--|---------------------|
| SECOND AVERAJING TYP Interval starte 4221 | SIZE DISTRIBUTIONS) NJMBER/(4443-MM) | 2 • 4 0 1 • 6 2 • 7 |

FLT 579–27 JN 22 MAR 79 .Econd Averajing Type: Rain .Nifeval start: "22:48:40"

MARINE BOUNDARY LAYER STUDY Scatte? Probe Data

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FLT E79-27 ON 22 MAR 79 28 SECOND AVERAGING TYPE: RAIN INTERVAL STATT *2234900* MARINE BOUNDARY LAYER STUDY Scatter Probe Data

MARINE BOJNDARY LAYER STUDY SCATTER PROBE DATA

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FLT F79-27 ON 22 MAR 79 20 SECOND AVERASING TYPE: RALN INTERVAL START: *22:49:40*

FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Start: "22:54:120"

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

PRESS (MB) 1018.32

10°-

PR ALT (KN)

T 13.96C

(H/S) 77.75

TAS

Z 2.20E-07

McD D 16

| ARTICLE SIZE | SUCITURIALIONS | PRESS (MB) | PARTICLE SIZ | E DISTRIJUTIONS | PRESS (MB) | PARTICLE S | IZE DISTRIBUTIONS | |
|--------------|------------------|------------|--------------|------------------|-------------|------------|-------------------|---|
| SIZE(MU) NI | UNBER/ (4++3-4#) | 1818.90 | A (MU) N | UMBER/ (He=3-HH) | 1010.95 | SI ZE (MU) | (エエージャナナ)/239エンス | |
| ~ | 1.175+08 | | ~ | 9.855+47 | | ~ | 7.865 +u 7 | |
| | 8.635+07 | PR ALT(XH) | | 4.145407 | PR ALT (KH) | t | 4.255+07 | |
| 9 | 1.772467 | - 05 | 9 | 7 45 +06 | 05 | 9 | 8.052+06 | |
| - 10 | 8.385+05 | | • •0 | 3.925+06 | | • | 3.275+06 | |
| 16 | 4*; 2c+86 | 1 12.500 | 10 | 3.135+06 | T 13.34C | 10 | 8.05ć+f5 | |
| 12 | 1.61 -+ 16 | | 27 | 0. | | 12 | | |
| 14 | | TAS (M/S) | 14 | 7.905+05 | TAS (H/S) | 14 | | |
| 16 | | 77.51 | 16 | .0 | 79.76 | 16 | d.045+05 | |
| 1.6 | | | 10 | .0 | | 18 | | |
| 20 | | 2 2.396-08 | 20 | .0 | Z 2.39E-09 | 20 | | |
| 22 | | | 22 | | | 22 | 7.98č+15 | |
| 24 | | | | à | | 24 | | |
| 26 | | | 26 | | | 26 | | |
| 28 | | | 2 B | •• | | 2.6 | ÷ | |
| 30 | | | 30 | | • | | ur a aa'_af | 1 |
| LWC | 2.14E-15 M | EC 0 6 | LMC | 2 1 1 1 1 1 1 1 | McU 0 7 | - | | ľ |

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE1 4ALN INTERVAL 5TART1 *22149124* MARINE BOUNJAFY LAYER STUDY Scatter Probe Data

PRESS (MB) 1018.44

PARTICLE SIZE DISTRT3UTIONS SIZE(MJ) NUMBER/(4003-34M) 2.155-08

- . 0 4

8.265+07 1.27*+07 2.385+05 1.605+06

(H/S) 78.50 T 13.02C PR A.T(KM)

TAS

Z 7.86E-09

MAPINE BOUNJAFY LAYER STUDY Scatie? Probe Daia

MARINE BOJNJAPY LAYER STUDY Scatte? Probe data

FLT E73-27 04 22 MAR 79 20 Seconj Averaing type1 Rain Interval Statt *22156100*

PRESS (M9) 1818.26

FLT 579-27 CN 22 MAR 79 20 SECOND AVERASING TYPE: RAIN INTEPVAL START: *22:50:148* PARTICLE SIZE DISFRIAUTIONS SIZE(MU) NUMBER/(M**3-MH) 2 Bujte47 4 5.275407 6 1.255407 6 2.40540 7

PRESS (MB) 1019.07 TAS (H/S) 18.81 T 14.58C PR ALT (KH) Z 1.68E-88 8.u12+E5 .

(H/S) 76.78

TAS

Z 2.35E-08

--0* 1 13-740

PR ALT (KH)

- .05

MED 0 5 1.246-35 LHC

MED D 7

1.316-35

LHC

MED 0 5

1.49E-05

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9 8 8 N 3 9 8 8 4 4 N N N N N N M

ALC: NO.

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FLT E79-27 ON 22 MAK 79 28 SECOND AVERAJING TYPE1 RAIN INTERVAL START: "22151139" MARINE BOUNDARY LAYER STUDY Scatter Probe Data FLT E79-27 ON 22 MAR 79 28 SECOND AVERAGING 77PE+ RAIN INTERVAL START *22451400* MARINE BOUNDARY LAYER STUDY Scatter probe data PARTICLE SIZE DISTRIGUTIONS Size(MJ) NUMBER/(M**3-MM) 2 8.+024(7 4 9.5736-07 6 9.876-06

FLT F79-27 ON 22 MAR 79 20 SECOMD AVERASING TYPE: RALN INTERVAL START: *221521199 PARTICLE SIZE DISTRIJUTIONS SIZE(NU) NUMBER/(M4+3-4M) 2 8.685-07 4 3.685-07 6 0+275-05 PRESS (M8) 1018.98 PR ALT (KM) -.05 24712LE SIZE DISTRIBUTION 2122(NU) NUMBER/(M*3-94) 22255-12 4.422-17 6.422-17 50 PRESS (MB) 1)18.92 PR 4LT (KH) -.05 T 14.

0. 1.615+06

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9999589999589999589 98888888

PRESS (MB) 1009.36 PR ALT(KH) .03

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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01.61 (2/H)

TAS

60-361°0 2

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0 4.1

T 14-91C

| T 13.940 TAS (M/S) | 10 | 7.825445 7.825445 |
|-----------------------|------------------------|--|
| TAS (M/S) | 12 | 7.8.5+05 |
| TAS (H/S) | | |
| | 14 | • |
| 76.27 | 16 | |
| | 18 | • |
| 2 4.07E-08 | 20 | •• |
| | 22 | ; |
| | 3 T | |
| | 26 | 0 . |
| | 28 | • |
| | 30 | |
| 45C D 7 | LWC | 9.562-76 |
| | 2 4.072-08 4.66 D 7 | 2 4.072-08 20 22 24 24 28 28 30 466 D 7 28 |

| (Y LAYER STUJY 1808e data | N 22 MAR 79 NG TYPE1 RAIN 1 *22151820* |
|-------------------------------|---|
| MARINE BOUNJARY Scatter Pr | FLT E79-27 ON Second Averauin Imterval starti |

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|--------------------|---|--|
| | 79 RAI 159* | |
| SCATTER PROBE DATA | FLT 579-27 ON 72 MAR 26 Second Ave Aling Types Intepval Statt +721511 | |
| | 6- 141 N 141 N | |
| • | AR / E1 / 5112 | |
| Ď | 221 221 | |
| P808 | NON I | |
| SCATTER | FLT E79-27 Second Average Interval Star | |

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PR ALT (KH) .05

T 14.65C

PRESS (HB) 1003.37

FLT 273-27 ON 22 MAR 79 20 SECOND ALE 0471M5 TYPE: RAIN INTERVAL STATT: *22152539*

MARING BOUNJARY LAYER STUDY Scater probe data

MARINE BOUNDARY LAVER STUDY

(H/S) 82.28

TAS

2.3.854-09

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MED D

7 + 05E - 76

LHC

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ME0 0

1.12 6-75

E NO

MED D 9

1-515-35

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PRESS (M9) 1017.57 PR A. T (KM) -.04 (H/S) 76.87 T 13.33C 7 5.266-09 TAS PRESS (H8) 1)19.18 PR A. T (KH) -.05 TAS (M/S) 76.41 L4.48C Z 3.21E-08 PARTICLE SIZF DISTRIJUTIONS SIZE(MJ) NUMBER/(4**3-4M) 2 9.145.467 6 4.95.2487 6 4.95.2487 16 25.466 12 25.456 14 3.155.066 12 2.45.066 14 3.155.066

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Mc0 0

1.005-35

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MSS 4 ---- 400 ft.

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERALING TYPE? RAIN INTERVAL START: *22156159*

FLT E79-27 ON 22 MAR 79 20 Second Av:Rasing type: Rain Interval state #22157039*

MARINE BOUNDARY LAYER STUDY Scatter probe data

PRESS (MB) 1815.25 -.02 (M/S) 75.68 T 15.20C Z 9.70E-08 PR ALT (KN) TAS PARTICLE SIZE DISTRIGUTIONS SIZE(MU) NUMBER/(4003.MM) 5.775407 6 5.775407 6 5.775405 1.655406 1.655406 12 82.675466 12 8.205405 14 3.315405 14 3.315405

(H/S) 76.75

TAS

. : ... ;

(H/S) 76.86

TAS

2 1.056-08

888588865888 88888885555

T 14.31C

PARTICLE SIZE DISTRIBUTIONS SIZE (MJ) NUMBER/1403 4 5.1146.07 6 5.115.07 6 8.1.15.06 8 2.425.06 12 8.175.05 12 8.075.05

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2 9.496-89

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MED 0

1.20--15

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1.125-35

L HC

MED D 13

2.456-35

L KC

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MAPINE BOUNDARY LAYER STUDY Scatted Probe Data

PRESS (MB) 1015.60

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE: RAIN INTERVAL START: *22:58119*

MARINE BOUNJARY LAVER STUDY Scatter Probe Data

--02 13.860

PR ALT (KN)

PARIICLE SIZE DISTRIJUTIONS Size(MU) NUMBER(MAP43-4M) 4.12.4.7 4.2.75.40 6 3.22.5.40 8 3.25.5.40 1.4 1.4 2.43.2.40

PRESS (M9) 1314.41 PR ALT(KM) -.01

MARINE BOUNJARY LAYER STUDY Scatter Probe Data

FLT EP9-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Start: *22157119*

PARTICLE SIZE DISTRIGUTIONS SIZE(NJ) NUMBER(M=3-HH) 2 4 3.355-07 6 1.215-07 8 1.225-06 8 1.225-06

PRESS (M9) 1014.84 ALT (KM) ã

MARINE BOUNDAPY LAVER STUDY Scatted Probe Data

FLT E79-27 ON 22 MMR 79 28 SECONT AV: PAJING TYPE1 RAIN INTERVAL START #22157159*

FLT 579-27 ON 22 MAR 79 20 Second Averaing typé, Rain Interval Statt • 22154139

PA9TICLE SI7: DIST9L9UTIONS SI7E(MU) NUMBER/(4003-MM) 2 9.765AL7 4 4.8554C7 s, PRESS (M9) 1015.63 - . 02 PR ALT (KH)

PRE45 (M9) 1015.97

TAS (M/S) 77.15 T 14.19C

2.366-08

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-.82 PR A. T (KH) T 13,320 TAS

11.77

Z 1.32E-08

MLD 0 6

1.29:-15

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MED 0 6

1.39E-05

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MED 0 7

1.52E-15

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2 4.72E-08

16.96 76.96

TAS

6-12E+05 8-1CE+05

-.01 1 15.390

PASS 4 ---- 400 ft.

MARINE BOUNDAKY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 26 SECOND AVERAGING TYPE1 RAIN INTETVAL STATT *22158159*

PARTICLE SIZE UISTRIAUTIONS SIZE(MU) NUMBER(140-3-9MM) 6 6.6.6.2.47 6 6.6.7.46 8 6.4.77 10 6.6.67 8 2.477.5.05 8 2.477.5.05 10 8.325 4.5 PRESS (M9) 1815.34 PR ALT (KH) -.02 12.11 2AT 7 14.290 2 2.27E-08 PARTICLE SIZE DISTRIJUTIONS SIZE (MU) NUMER/(M+3-44) 2 8.314.07 4 5.975.407 6 1.295.407 8 3.235.406 12 3.235.406 12 1.615.406 12 1.615.406 •

TAS (M/S) 74.05

T 13.58C

8.315+05

2 8.765-09

2 3.185-08

15.55 12.55

TAS

1.645+05

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¶_L0 0

1.035-35

LNC

MLD 0 7

1.36-15

LNC

1-0 0 7

1.80--75

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PRESS (48) 1815.25 PR ALT (KM) -.02

PAPTICLE ST2E DISTTAUTIONS SIZE (MU) NUMBER/(M+=3-4M) 2 6.65-4.7 4 5.22-4.87 6 7.552-46 8 2.5'5-46

--01 T 14.15C

PR A_T (KH)

PRESS (M9)

FLT E79-E7 ON 22 MAR 79 26 SECONO AVERAGING TYPE: RAIM INTERVAL STATI -23:080:19*

FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Statt: *22:59:39*

MARINE BOUNJARY LAVER STUDY Scatter Probe Data

MARIME BOUNDARY LAYER STUDY Scatter Probe Data

MARINE BOUNDARY LAYCR STUDY Scatter Probe Data

FLT E79-77 ON 22 MAR 79 20 Second Avgrasing 17PL: Rain Interval Start: #22:59119*

PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUM9ER/(M++3-4M) 2 2.0135+05 4 5.015+07 6 3.135+07 8 3.255+06 10 3.095+05

2.436 +06

0 N 2 G 0 3 N 2 G 0 0

PARTICLE SIZ≜ DISTRIJUTIONS SIZE(NU) NUMBER(14003-MM) 512(NU) NUMBER(14003-MM) 6 3.3254.7 6 5.566 8 5.296.466 1 1.565466 1 1.565466 9.225+05 8.22E+15 PRESS (MB) 1015.49 PR ALT (KM) --02 (H/S) 77.19 T 14.290 Z 3.31E-00 TAS

FLT E79-27 NN 22 MAR 79 20 SECOND AVERASING TYPE1 RAIN 1NTEFVAL START *22454159*

MARINE BOUNDARY LAYER STUDY Scatter Probe 2474

FLT E79-27 ON 22 MAR 79 20 SECTUD AFFRAJUG TYPE3 RAIN INTERVAL START +23+00139*

PARTICLE SIZÉ UISIRIAHITOHS 512E(MU) NUMBER/(4**3-4**) 2 5-5-7 5-5-5-47 6 5-395-407 6 5-595-407 8 4-912-66 10 1-615-66 10 1-615-66 19 2-45-405 19 2-45-405

PRESS (M9) 1114.03

MARTNE BOUNJARY LATER STUDY Scatte? PROBE DATA

PR ALT (KH) -.01

PRESS (MB) 1315-23

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PR A. L (KN)

T 14.53C

(H/S) 76.79

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(H/S) 75.33

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PRE-5 (MB) 1815-51 PR ALT (KN) (H/S) 78.89

TAS

2 3.596-09

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6.83--16

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1 13.730

MARIME BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 28 SECOND AVERAGING TYPE: RAIN INTERVAL START: 0231001590

PARTICLE SIZE DISTRIBUTIONS SIZE(NU) NUMBER/(M0+3-MM) 2 5.715+07 6 7.186+07 6 7.186+06 8 0.015+05

FLT E79-27 ON 22 MAR 79 20 Second Averajing type1 Rain Interval Statt =23001039 MARINE BOUNJARY LAYER STUDY Scatter Probe Data

FLT 579-27 DN 22 MAR 79 28 SECOND AVEPASING TYPE1 RAIN INTERVAL START *23122029*

MARINE BOUNJARY LAVER STUDY Scatter Probe Data

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| | ~ | 5. 75 + 7 | | 2 | 6.84° 447 | |
| PR ALT (KH) | | 2.315+07 | PR ALT(KH) | * | 6. 6.5E +C7 | |
| 00 | 9 | 3.975+06 | 82 | ÷ | 7.105+86 | |
| | - | 2,395+06 | | • | 3.467.06 | |
| T 14.63C | 10 | 8.C2C+65 | T 14.590 | 18 | ; | |
| | 12 | 7.85±+85 | | 12 | | |
| TAS (M/S) | 4 | | 1AS (#/S) | 1 | - | |
| 78.11 | 91 | | 79.72 | 16 | | |
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| 0 5 | LNC | 7.427-36 | MLC D 7 | 5 | MC 9.62 ⁷ -36 | Ŧ |

0.11E+05

MAPINS BOJNJARY LAYER STUDY Scatter Probe Data

FLT F79-27 ON 22 MAR 79 20 SECONJ A45 P451NG TYPE1 RAIN INTERVAL 214311 1234014199

PRESS (M9) 1913.92 PARTICLE SIZE UISTRIJUTION. SIZE(MU) NUMRER/(M®+3-MM) 2 4.832.47 4 2.692.407 6 8.692.405 8 7.882.405

MARTNE BOUNJARY LATER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 second Ave Pajing type1 Rain Intraval start: *2301159*

FLT _79-27 CN 22 MAR 79 28 SECONT A4E 94,1WG 179E1 RAIN INTERVAL START 92318299

MARINE MOUNDARY LAYER STUDY Scatted Probe Data

PRE_5 (49) 1814-66 1. T 14.54C PR ALTING

PRESS (49) 1125-37

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PR ALTERN

T 11.90

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2 1.146-08

2 1.346-09

(S/H) T 14.34C

TAS

--01 PR A.T(KM)

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PARTICLE SIZE UISTFT JUTIONS SI ZE (NU) NJUNEP/(4003-4M) 1.735+68 1.215+68 2.255+87 2.425+87

(8/H) 17.65 2 5.326-09

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MLD 0 5

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PASS 4 --- 400 ft.

MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT ET9-27 ON 22 MAP 79 28 SECOND AVERAGING TYPE: RAIM INTERVAL START: 0231021590

FLT E79-27 ON 22 MAR 79 20 SECOND AVE46ING TYPE1 R4[N INT:5VAL STA2T1 +23103139* PARTICLE SIZE WISTRIAUTIONS SIZE(MU) NUMERA(MM93-444) 4 4.15.4.34 6 4.1.96.409 6 1.1.96.406 8 7.906.406 10 7.965.445 12 7.965.405 PRESS (MB) 1015.55 --02 PR ALTIKHI PARTICLE SIZE DISTRIJUTIONS SIZE(MU) NUMBER/(M003-MM) 2 2 2.72E4J7

PRESS (M9) 1814-68

FLT E79-27 ON 22 MAR 79 20 Second Ay: Raging type1 Rain Interval start *23104149*

MARTNE BOUNDARY LAYER STUDY Scatter probe data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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PR A.TIKM)

PAPTICLE SIZE FISTRIJITONS SLIZE (MJ) MUMER/(4003-MM) 2 1.53540 4 2.24540 6 5.244407 6 5.244407 1 5.244407 1 5.244407 1 6 5.244407 1 6 5.244407 1 6 5.244407 1 7.34245

--01 T 11.760 PR ALTIKH)

PRESS (M9) 1014.55

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15/4)

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Z 1.43E-08

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TAS (#/S) 78.96

TAS (H/S) 75.42

Z 2.22E-08

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MARINE BOUNDAPY LAYER STUDY Scatter Probe Data 51- 22.5 LHC 16P D 10

ELT -79-27 CV 72 MAP 79 26 SECONJ AVEPAGING TYPL: KAIN INTERVAL SIARI: -231.3319* MARINE BOUNDAPY LATER STUJY Scatee Poje Data

SIZE (MU PRESS (MA) 1015.79 PAPTICLE SIZE UISPP19UTIONS Size(MU) NUMBER/144*3-44) 2 0.1964-7 6 1.665407 6 1.615407

| IAR 79 "El Rain "C4179" | PRESS (| PR A.10 | T 11. |
|---|---|------------|---------------------------|
| FLT E73-27 NN 22 M 20 Second Avepasing TYP 20 Interval Statt +234 | PARTICLE SIZ: UISTATJUTIONS SIZETMU) NUMBERIA+3-4M) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | | |
| 14: 79 1: 1: Raí n 1: 0: 3159: | 14,55 (48) 144.11 | FP ALT(KH) | T 11-355 |
| FLT 279-27 CN 22 M 20 SECOND AVE PAJING TYP INTE-VAL 218715 4231 | (MM-244)/2344400 (DM) SNCILNEIaISIO TZIS JOJ | | 7, 5,45 3,17,45 8,1 |

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PR ALT (KH)

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| PRESS (49) 3414+11 | τ."- (אא) Σ"Ψ α∃ | T 11.350 | (S/H) CAT 64.85 | Z 1.64E-08 | |
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| UTSTAT JUTTONS | MBER/ 1444 3-44) | 1.265.458 | 1.215+64 | 1.5 4E +C 7 | 4.33±+06 | 0. | d.195+05 | | •• | | · | • | | 0. | <i>b</i> . | |
|----------------|------------------|-----------|----------|-------------|----------|-----|----------|----|-----|----|----|----|-----|----|------------|---------|
| PARTICLE STZ | SIZE (W) N | 2 | 3 | ç | æ | 10 | 12 | 14 | 16 | 18 | 25 | 22 | , , | 26 | 28 | л. Г |
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TAS (H/S) 75.83

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1.625 +06 7.395+05 8.105+05

T 11.19C

PRESS (MB) 1015.44 -.02 PR ALT (KH)

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MARINE BOJNJAPY LAYER STUDY Scatje Probe Data

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| STUDY MARINE BOUNTARY LAVER STUDY SCATTER PEOBE DATA R. 79 FLT E79-27 ON 22 MAR 79 INTERVAL SCATTER PEOBE DATA R. 79 ZG SCOND AVERASTNG TYPEL RAIN INTERNAL SCATTER PEOBE DATA PRESS (H9) DATICLE SIZE DISTRIPTIONS RESS (H9) INITEND SIZECOND AVERASTNG TVEL RAIL(KH) PRESS (H9) DATICLE SIZE DISTRIPTIONS RESS (H9) ILO00-70 T 11.100 ILO SIGE+07 R. A. I (KH) TAL (H1) DIST DIST TAL (H1) ILO00 TAL (H1) DIST DIST TAL (H1) DIST TAL (H1) DIST DIST MELNE BOUNDARY LAYER STUDY TAL (H2) DIST DIST DIST DIST TAL (H2) |
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MARINE BOUNDARY LAVER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 Second Averajing type1 Rain Interval Statt *23108559* 20

PARTICLE SIZE DISTRIGUT JNS SIZE(MU) NUMBER/(M+7-4H) 4 1.735+08 6 3.155+08 9 1.25+06 10 8.325+05 12 8.355+05 12 8.355+05 8.735+55 2+59.-15 ;... 4 PRESS (M9) 1009.85 .0. (S/H) T 10.57C PR ALT (KH) Z 1.27E-08 TAC PARTICLE SIZE DTSTRIJUTIONS SIZE (NU) NUMBER/(M**3-MM) 2 1.965-08 4 1.415-08 6 2.165-07 8 4.145-06 8.295+05 5 • ::

PRESS (MB) 1011.23

FLT E79-27 ON 22 MAR 79 20 Second Averajing typei rain Interval Staqt: *23110119*

FLT E79-27 ON 22 MAR 79 20 SECOMD AVERAJING TYPE: RAIN INTERVAL START: *23109139*

HARINE BOUNDAPY LAVER STUDY Scatter Probe Data

MARINE BOUNDARY LAYER STUDY Scatter probe data

-05 PR ALT (KM)

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PR ALT (KM)

T 10.04C

PRESS (MB) 1112.14

T 10.49C

(H/S)

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(H/S) 75.35

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FLT 573-27 CN 22 MAR 79 20 SECOND AVE 9451NG 1 YPE1 RALM INTERVAL 514311 *23109159* MARTNE PUUNJAFY LAVER STUDY Spatter Probe Data MARTNE BOUNDARY LAVER STUDY Scatted Probe Data

FLT E79-27 ON 22 MAK 79 20 Second Avepaging type: Kain Interval Statt *23:09:19*

PRLSS (M9) 1)12.42 9. A9C (S/H) .01 A. T (KM) r a s ž ⊢

FLT E79-27 ON 22 MAR 79 26 Second Augasing type: Rain Interval Statt: "23110139" PRESS (MB) 1,11.46 PR ALT(KM) .01 T 10.22C PAOFICLE SIZE DTSTRTGUTIONS SIZE(MJ) NUMBER/(MMM7-NMM) Z 1572448 4 1.255408 6 1.477408 8 3.175406

1,11.58

. 01 10.640

MARINE BOUNDARY LAVER STUDY Spatier probe data

2431ICLE SIZE UTSTRT3UTIONS SIZE(MU) NUMBER(14**3-MM) 2 4 9.585407 6 1.455407 8 1.455407 10 8.075405 12 8.075405 14 0.0 1 TAS (H/S) 78.25 Z 1.12F-08

7.925+05 0.

Z 2.21E-08

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003000N3000 111110NNNN

2 1.136-08 PRESS (MB) PR ALT (KM) TAS -

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERASING TYPE4, RAIN INTERVAL START *2312259*

MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 26 Second Averasing type, rain Interval Start: *23111139*

FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Start: *2342849*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data,

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TAS

PR ALT(KH) .01

PARTICLE SIZE DISFRIJUTIONS SIZE(MU) NUMBER/1443-4M) 4 1.245448 6 1.35548 8 5.55406 10 8.145405 12 8.145405

T 10.90C

PRESS (MB) 1012.32

(H/S)

TAS

Z 1.40F-08

PRESS (MB) 1)10.05 PR A.T (KM) .03

PARTICLE SIZE DISTRIJUTIONS SIZE(MJ) NUMBER/(M*3-WM) 2 7.385+07 4 4.5305+07 6 8.935+06 8 3.235+06 PRESS (MB) 1012.45 (H/S) 76.33 7 11,06C ÷. Z 7.62E-09 PR ALTIKM)

(W/S) 77.01

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MARINE BOJNJARY LAYER STUDY Scatte? Probe data

FLT E79-27 ON 22 MAK 79 20 Second Averasing type: Rain Interval start *23:11:59* MARINE BOJNJARY LAVÉK STUDY Scatie? Probe data

MARINE GOUNDARY LAVER STUDY Scatter Probe Data

FLT E79-27 CN 22 MAR 79 20 SECOND AVERAING TYPE1 RAIN INTE0VAL START *2311119*

FLT E79-27 ON 22 MAR 79 26 SECOND AVERAGING TYPE: RAIN INTERVAL STARI *2312239*

PRESS (MB) 1012.04

5 T 11.87C

4.16E+06 8.3CE+05

PR ALT(KM)

PATICLE SIZE DISTATAUTIONS SIZE(MU) NUMBER/M**5-MM) 2 1.165-40 4 1.167-08 6 2.196-07

PRESS (44) 1111.77

EAPTICLE SIZE JIST913US SI ZE (MU) NU49ER/(4##3-MM) 2 2

PRESS [M9) 1012.69

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7.235.407 1.305.407 3.235.406 8.14545

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PR ALT (KH)

PARTICLE SIZE OTSTRIJUTCJNS SIZE(MU) NUMBER/14493-4H) 4 1.4556.0 6 1.235408 6 4.355408 8 4.35240 8 4.35240 1.62670 8 1.62670

T 11.03C

PR ALT (KHI

84-52 12-48

TAS

.6666+05

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MARINE BOUNDARY LAYER STUDY Scatter Probe data

FLT E79-27 ON 22 MAR 79 20 SECOMO AVERASING TYPE: RALN INTERVAL START: +23112459*

PRESS (M8) 1009.45

PRESS (49) 1011.22

FLT F79-27 ON 22 MAR 79 20 Second Averaging type1 rain Interval stati *23114129*

FLT F79-27 ON 22 MAR 79 20 Second Averasing type: Rain Interval Start: *23123139*

MARINE BCUNDARY LAYER STUDY Scatter probe data

MARINE BOUNDAPY LAYER STUDY Scatter Probe Data

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PR ALT (KM)

PARTICLE STZE DISTRIGUTIONS SIZE(MU) NUMBFR(14003-4M) 2 4.445.04 6 5.015.67 6 1..75.07 8 2.066.40 10 1.05.06 12 12 8.255.05

.02 T 11.570

1.062+08 2.5145+08 3.2255+00 7.972+00 7.9976+05 7.996+05 6.996+05

PR ALT (KM)

(8/H) 75.96

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Z 1.31E-08

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24RTICLE SIZE DISTRITUTIVE SIZE(MU) NUMBER/(M*#74W) 5126(MU) NUMBER/(M*#74) 2 ø PRESS (M9) 1111.81 TA. (M/S) 78.41 T 12.715 PR A.T(KM) .01 2 7.3GE-08 PARTICLE SIZE DISTRIJUTIONS SIZE(MU) NUMBER/(M**3-4M) 2 7.465.4.7 4 6.375.407 6 6.385.406 8 2.395.406 0. 7.925+05 8+065+05

MARTNE BOJNJARY LAYER STUGY Scatter Prime Data

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| +611-1 | F2ESS (48) 1111.41 | PR ALT (K4) .02 | T 11.53C | TAS (H/S) 75.96 |
|--------------------|---------------------------------------|---|----------------------|--------------------------------|
| COND AVERASING TYP | IZE UISIRIAHIIONS NUMBER/(M**3-MH) | 1- 4 4 11 + 1 8 1- 1 4 11 + 1 8 1- 1 4 1 + 1 8 1 4 4 1 + 1 4 1 4 4 4 4 1 4 4 4 4 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 7.995+05 8.135+05 | 875+05 3.095+05 8.115+05 |
| 20 SE 14 | PARTICLE S SIZE(MJ) | N J W = | 4 4 9 ° | 4 6 6 |

| 79 N 184 119* | FLT 279-27 NH 22 H 20 Sécond Augading 17P Intequal Statt 423 | IAP 79 12 2AIN 12159* |
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| F2ESS (48) 1111.41 | PARTICLE SIZE PISTRIJULS SUCITURIST PISTRIJULS SUCITURIST PISTRIJULS | P2ESS (M4) 1111.14 |
| PR ALT(K4) .02 | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | РК А.Т (КМ) •03 |
| T 11.53C | 8 2 - + 6 + C | T 12.91C |
| TAS (H/S) 75.96 | | TAS (H/S) 76.84 |
| Z 1.16E-07 | 18 8.11c+75 22 8.11c+75 22 3. | Z 1.13E-07 |
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| | P4PTICL5 S SIZE(MU) 2 4 6 6 10 12 12 14 16 16 |

| MAR 79 Pët raln 114139* | PRESS (M9) 1011-52 | PR ALT (KH) .01 | T 12.13C | TAS (M/S) 77.93 |
|--|---|---|---|--------------------|
| FLT ±79+27 DN 22 ECOMM A√T≷A5ING TY NTF?VAL STAXTI ♥23 | (MM-E++F)/JBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB | 1.15545 7.395467 1.205467 1.532467 | 3 • 7 • 1 • • • • • • • • • • • • • • • • | • • • |
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MARTNE BOUNJARY LAVER STUDY Scatify Probe data

MARINE BOUNTARY LAVER STUDY Scatter proje data

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MÁRINE BOUNDARY LAYER STUDY Scatter frobe data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIN INTERVAL START *23114159*

PR¢SS (MB) 1012.65

FLT E79-27 ON 22 MAR 79 20 SECOND AVCRAGING TYPE: RAIN INTERVAL START: *23115139* MARINE BOUNJARY LAYER STUDY Scatter Probe Data

| PRESS (M9) | 1012.37 | | PR A. T (KM) | 10. | | T 13.910 | | TAS (M/S) | 75.56 | | Z 3.63£-08 | | | | | |
|--------------------|-------------------|------------|--------------|----------|----------|----------|----|-----------|----------|----|------------|-----|----------|----|----|----|
| SIZE DISTREBUTIONS | NUMBER/ (4++3+MM) | 9.335 +L 7 | 6.35±+07 | 8.27E+06 | 1.655+06 | 1.657+45 | .0 | .0 | 8.235+65 | | 0. | • 7 | . | • | .0 | • |
| PARTICLE : | SI ZF (HJ) | N | t | ور | 80 | 10 | 12 | 46 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |

50.

AL T (KN)

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PARTICLE SIZE DISTRTBUTIONS Size(MJ) NUNBER/1403-MN) 2 1..056-06 6.815-07 6 1.276-07

(N/S) 78.70

TAS

Z 1.+9E-09

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T 12.420

8.J1E+05 1.59E+06

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| 5 | - | | | | | | | | | | | | | | | Ţ |
|---------------|----------|-------------|----------|----------|----------|----|-------|----------|----|----------|-----|----|----|----|----|----------|
| ACITUE ISTO | 8.966+67 | 3.695+07 | 9.00E+06 | 7.985+05 | .0 | | | | | | • | .0 | | с. | •7 | 6.81E-35 |
| SIZE | | | | | | | | | | | | | | | | LNC |
| PARTICLE | 2 | t. | 9 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 54 | 26 | 28 | 30 | |
| LSS (MB) | | A. T (KM) | -01 | | 13.910 | | (N/S) | 75.56 | | 5.63E-08 | | | | | | ç |
| PR | | ã | | | - | | TA | | | 2 | | | | | | 0 |
| .0 | | | | | | | | | | | | | | | | Ť |
| NOISTRIBUTION | 9.335+67 | 6.352+07 | 8.27E+06 | 1.655+06 | 1.657+65 | 0. | .9 | 8.235+65 | | .0 | • 7 | | • | •• | • | 1.5515 |
| SIZE | 2 | | | | | | | | | | | | | | | Ë |

(S/H)

TAS

Z 2.00E-09

4

1.7 0

PRESS (MB) 1012-61 PR ALT (KM) 10, T 14.14C

FLT E79-27 ON 22 MAR 79 20 SECONO AVERASIMG TYPE RAEN INTERVAL START *23116119*

MARINE BOUNDARY LAYER STUDY Scatter proge data

ŝ D 4:0 1.432-35

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MAPINE GOUNTARY LAYER STUDY Scattes probe data

FLT E79-27 ON 22 MAR 79 26 56000 A42451NG TYPER RAIN INTEPVAL START *23415419*

PRESS (M9) 1012.49 A.T (KM) .01 ã

MARINE BOJNTARY LAYER STUDY Scatter Froge Data

FLT E79-27 ON 22 MAR 79 26 °ECOND Averaging type: Rain Intedval Start: *23:15:59*

MARINE BOJNJARY LAYER STUDY Scatted Probe Data

FLT E73+27 ON 22 MAR 79 20 SECOMD AVFASING TYPE1 RAIN INTERVAL STARI #23416139*

PARTICLE SIZE DTSIRTJUTIONS SIZE(MJ) NUMBER/(4443-44) 4 5.795-47 6 1.565-407 8 1.565-40 10 7.995-45 12 7.855-45 AL T (KM) ã

PRESS (48) 1111-95

PR ALTERNS -01 T 13.91C

P9ESS (M8) 1012.86 .00 1 13.650

8.265+05

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68911000010000 80000010000 TAS (H/S) 76.14 Z 2.31E-08

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(M/S) 78.85

TAS

2 1.046-08

Mc0 0 6

1.126-75

С. М

4E0 0 7

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1.00 0

1.766-35

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(12/H)

TAS

901009010000 991199000000

T 13.720

1.626-35 å 2 3.375-08

PASS 5 ---- 500 ft.

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MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 SECOMD AVERAGING TYPE: RAIN INTERVAL START *23416459*

PRESS (M9) 1011.81 AL T (KH) .01 (S/H) 17.75 T 15.04C 2 3.22E-08 IAS æ PARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER/14403-344) 2 2 975-07 6 5.975-07 6 5.975-06 8 0.01205 10 0.02505 8.82E+0<

PRÉSS (49) 1111.17 4.0 PARTICLE SIZF DISIRTGUTIONS SIZE (MU) NUMBER/(M**3-4M) Z 6652.07 4 4.555.07 6 1.592.06 8 1.592.06 0.1.5+05 9.772-36 . ----L

•05 1 15.420 (W/S) 72.77 Z 8.29E-09 AL T (KM) ŝ TAS ğ 0

9 MED PARTTCLE ST2E DISTRIJUTIONS SIZE(MU) NUMBER/(M**3-MM) Z 6.657.417 4 2.725-07 6 8.785.405 8 0.115-05 5.116+05 7.426-36 . . : S

Z 7.30E-09

ŝ

(S/H)

TAS

.03 T 15.70C

1009.23

PRESS (MB) PR ALT (KM)

FLT E79-27 ON 22 MAR 79 20 Seconj Averaging type: Rain Interval Start = 53:10129

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE: KAIN INTERVAL START +23117139*

MARINE BOJNDARY LAYER STUDY Scatter probe data

MARINE BOUNDARY LAYER STUDY Scatter probe data

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MARINE BOUNDAPY LAYER STUDY Scatter Prube Data

FLT 679-27 ON 22 MAR 79 26 SECOND AVERAJING 17PE1 RAIN INTERVAL 314211 +231161395

FLT L79-27 ON 72 MAR 79 26 Second Averasing type1 Rain Interval Start = 23:17:59* PAPTICLE S'

PRESS (M9) 1111.09

.02 15.06C

PR A_T(KH)

PARTICLE SIZE DISTRTJUTIONS SIZE(MU) NUMBER/(4443-444) 4 3.375-07 6 3.235-07 6 4.645-06 8 1.655-06 8 0.025-05 10 0.025-05

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPL: RAIN INTERVAL 514311 *23117119*

MARIME BOUNJARY LAYER STUDY Scatte? PROBE JATA

MARINE BOUNJARY LAYER STUDY Scatter probe data

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** 60-78

PRESS (MB)

.13 T 15.50C

PR ALT(KM)

PRESS (M9) 1012.49 .01 T 15.57C ALT (KM) æ E SIZE LISTRIJUTIONS NUMBER/ (14+3-144) 4.745-17 4.755-40 4.755-40 5.325-40 1.575-40 0. 0.

PARTICLE SIZE DISTRIAUTIONS Size(mu) NUMBER(M+03-MM) 2 2 2 2 3.5 44-03-MM) 6 7.367-05 6 7.367-05 12 0.95-05 14 0.496-05 14 0.496-05 14 0.406 200000

Z 3.72E-09

(M/S) 76.16

TAS

(S/H)

TAS

Z 8.36E-09

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0001/00001/0001 M/////

(N/S) 71.17

L Se

3-105+05 8.16E+05

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Z 7.46E-08

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1.052-05

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ML0 0 13

1.41E-15

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PMSS 6 ---- 100 ft.

MARINE BOUMOARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 Second Averaging type, rain Interval start: *23:24:59*

FLT E79-27 ON 22 MAR 79 20 Second Ave3461ng type: Rafn Interval Statt *23125139* MARINE BOUNDAPY LAYER STUDY Scatter probe data

MARK AND STORE

| PRESS (MB) | PARTICLE SIZE | DISTRIGUTIONS | PRESS (MB) |
|-------------|---------------|----------------------|------------|
| 11 25.82 | SIZE (MJ) NU | HBER/(4++3-4H) | 1026.26 |
| | 2 | 1.26E+08 | |
| PR ALT (KH) | £ | 1.446.0 | PR ALT(KH) |
| 10 | ¢ | 3.965 +1.7 | 11 |
| | •0 | 9.91E+06 | |
| T 11.41C | 10 | 1.655+C6 | T 11.390 |
| | 12 | 6.255+u5 | |
| TAS (M/S) | 16 | 1.65E+06 | TAS (M/S) |
| 77.83 | 16 | 6.25E+05 | 75.50 |
| | 18 | | |
| Z 6.00E-08 | 20 | ů. | 2 2.725-07 |
| | 22 | 8.20E+05 | |
| | 54 | 0. | |
| | 26 | .u. | |
| | 28 | | |
| | 30 | •• | |

PARTICLE SIZE DISIRIGUTIONS SIZE(NJ) NUHBER/140-3-00 5 1.226-00 6 1.2255-00 6 2.955-00 10 4.0125-00 10 4.0125-00 12 1.595-00 12 1.595-00

8.84E+65

808600003088 8070000

TAS (H/S) 76.69

0.15E+05

2 2.376-08

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450 0 5

2.87 5-35

СHС Н

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ME0 0

0. 5.152-15

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4ED D

3.63:-35

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1 11.490

PRESS (HB) 1)26.17 PR ALT (KM) -.11

PARTICLE ST2E DISTRTJUTIONS Size(MU) NUMBER(1400-3-44) 4 1.324-90 6 2.345-07 8 6.5426-07 8 6.5426-07 8 6.5426-07 10 3.254-06

FLT E79-27 ON 22 MAR 79 20 SECOND AVERASING TYPE1 RAIN INTERVAL 51471 *23126149*

MARINE BOUNDARY LAYER STUDY Scatter Probe data

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FLT E79-27 CN 22 MAR 79 20 SECOND AVERAGING TYPE: RAIN INTERVAL START: *23125119*

MARINE BOUNJARY LAVER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVEPAJING TYPE1 KAIN INTERVAL START #23125159*

FLT E79-27 ON 22 MAR 79 20 Second Averaging type9 kain Interval Start = 231261394

MARINL BOUNJARY LAYER STUDY Scatter Probe Data

PARTICLE SIZE DISERTUTIONS SIZE (MU) NUMBER/14443-441) 2 1.525.48 4 1.525.48 6 3.225.40 6 5.778.406 10 5.782.405 12 1.545.406 12 1.545.406

PRESS (MB) 1126.13

--11 PR ALT(KH)

PARTICLE SIZE DISTRIJUTIONS Size (NU) NUMBER/1403-3HM) 5 1.4416-08 6 3.4656-06 6 3.425-06 8 3.246-06 18 3.246-06

PRESS (MB) 14 26.10

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PR ALT(KM)

PRESS (M9) 1326.16 --11 PR ALT (KM) T 11.38C

(H/S) 75.64 Z 9.25E-08 TAS

689472889472889 40005064464

8.275+05

Z 7.46E-05

(N/S) 76.73 T 11.38C

TAS

1.645+06 8.J 85+05

(1/S) 76.96 T 11.64C 2 1.295-85 TAS

5 MED D

2.31E-15

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4ED D 7

3.746-05

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MED 0 6

3.91 E-05

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MSS 6 --- 100 ft.

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MARINE BOUNDARY LAYER STUDY Scatter probe data

MARINE BOUNDARY LAVER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 28 SECOND AVSRAGING TYPE: RAIN INTERVAL START 0231261590

PRESS (MB) 1326.05 PR A.T(KH) --11 (S/H) 11-800 2 9.315-08 TAS

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIN INTERVAL START1 *231271395 TAS PAPTICLE SIZE DISTRIBUTIONS SIZE (MJ) NUMBER (1443-34M) 4 1.965-08 4 2.965-07 8 1.1.75-07 8 1.1.75-07 1.0 1.2.75-05 317 30000N3000 1440NNNNN

PRESS (MB) 1826.22

FLT E79-27 ON 22 MAK 79 20 Second Averaging type: Rain Interval Statt: •23:28:19*

MARINE BOUNDARY LAYER STUDY Scatter probe data

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PRESS (M9) 1026.59 PR ALT(KM) -.11 (H/S) 75.75 11.540 Z 0.38E-05 • 150 0 2.47E+06 8.27E+05 3**.**59c-1F ŝ

PR A. T (KH) --11 T 11.48C 2 6.09E-05 IAS PARTICLE SIZE DISTRIJUTIONS 2 ZE(NU) NUMBER/(M**3-4M) 2 B.275+07 4 1.2.355+08 4 2.4.275+06 6 5.4.77+06 10 7.325+06 12 3.275+05 14 8.137+05 14 8.137+05 099575 905700 41444575

(4/S) 76.88

ME0 0 3.89 6-15 Ę

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MARINE BOUNDARY LAYER STUDY Scattlr Progr Data

FLT E79-27 CN 22 MAR 79 24 Second Avtasing type: Kain Interval Statt *13129139*

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PARTICLE ST2E UISTRT3UTIONS 512E(MU) NUHBER/(190-3-MM) 2 9.5854.7 4 1.092.407 5 2.025467 8 3.32546 - .11 1026.53 PRESS (MB) AL T (KM) ž

PRE25 (M9) 1326.14

PR ALT (KH)

r 11.530

(H/S) 76.72

TAS

3.255406 8.195405 8.14545

(N/S)

TAS

11.850

(S/H) 79.11

TAS

1.625+06 7.966+05 7.906+05

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ALT (KM)

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11.530

1026.30

00011000011000 00010001000

2 7.635-09

3986233989 4442222

Z 1.24E-07

N 3 9 8 8 N 3 9 8 8

2 7.376-08

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460 0

3.30E-15

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MED D 7

3.235-35

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MED D 0

3.12E-15

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9-966+07 1-665+03 2-12+12 2-43+12 2-43+16 2-43+16 2-43+16 2-43+16 1-656+05 1-656+05 1-656+05

PATICLE SIZE DISTREBUTIONS SIZE(MU) NUMBER/(4**3-MM)

FLT E79-27 ON 22 MAR 79 20 SFCOND AVERAJIN5 TYPE1 RAIN INTERVAL ST471 *23127159*

MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAK 79 20 SECOND AVERASING TYPE1 RAIN INTERVAL START *23127119*

MARINE BOUNDARY LAYER STUDY Scatter Probe data

PRESS (HB)

62

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MED 0

3.052-15

PASS 6 --- 100 ft.

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MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 Second Averaging Type: Rain Interval Statt *23128159*

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FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIN 1NTERVAL STATTI *23129139*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

| PARTICLE | STZF | DISTRIBUTIONS | PRE | SS (HB) | PARTICLE | SIZE DI | STRI BUTIONS | |
|----------------|------|-------------------|------|-----------|------------|------------|----------------|---|
| SI ZE (MJ) | Ì | HBER/ (H++ 3-44) | | 1026.02 | SI ZE (MU) | NUMBE | R/ (H++ 3- HH) | _ |
| ~ | | 1.05E+68 | | | ~ | ~ | L.2JE+08 | |
| | | 9.465+07 | æ | A_ T (KM) | £. | - | 90+str*1 | |
| • •4 | | 2-125+07 | | 11 | ¢ | - | 1.92E+C7 | |
| • | | | | | - | | | |
| • • | | 1.635+86 | F | 11.82C | 10 | ~ | | |
| | | 2.457+86 | | | 12 | n y | 2.385 +66 | |
| : : | | 1.63E+06 | TAS | (H/S) | * | | 3.11E+O5 | |
| | | A. 136 +05 | | 76.45 | 16 | 0 | - | |
| | | | | | 18 | ~ | 7.975+05 | |
| | | : 4 | 0 2 | 23E-08 | 26 | | | |
| ; ? | | | | | 22 | - | | |
| | | | | | 54 | - | | |
| 26 | | | | | 26 | ., | | |
| 28 | | | | | 28 | | • | |
| 2 | | | | | 30 | - | | |
| 2 | LHC | 3.215-15 4 | ED 0 | 80 | | LHC 3, | .18c-15 | ¥ |

MARINE BOUNDARY LAVER STUDY Scatter probe data

63

FLT F79-27 ON 22 MAR 79 24 Second Averaging Type: Aain

| +61162 | PRESS (MB) | 1126.17 | | PR ALT(KM) | 11 | | T 12.36C | | TAS (M/S) | 76.95 | | Z 4.14E-88 | | | | | |
|-------------------|--------------------|------------|----------|------------|---------|----------|----------|----------|----------------------|-------|----|------------|----|----|------|----|----|
| TERVAL STATE -231 | IZE DISTRI JUTIONS | | 9.56E+07 | 6.50E+87 | 1.7 487 | 4.86E+06 | 2.43E+06 | 2.43E+66 | 8.10 ⁻⁺⁰⁵ | •• | | • | | | | 0. | • |
| | PARTICLE : | SI ZE (MU) | 2 | | 9 | - 48 | 10 | 12 | -4 | 9 | 18 | 20 | 22 | 54 | 26 | 28 | 38 |

| TAS (M/S) 78.32 | 2 9,57E-05 |
|--------------------|------------|
| 8+111+05 | 7.975+05 |
| 8+111+05 | 0. |
| 0. | 0. |

| SIZE DISTRIBUTIONS | 1 NUTOLA 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1.195+08 | 2.72E+07 | 5.77±+06 | 2.545+06 | 1.645406 | • | • | • | • | • • | . | ъ. | - | • 7 | 1 ML 2 ML - 15 |
|--------------------|--|----------|----------|----------|----------|----------|-------|-------|----|--------|-----|----------|----|----|-----|----------------|
| PARTICLE | 2 2 | ÷ | 9 | • | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 42 | 26 | 28 | 30 | |
| S (HB) | 126.10 | TCKNI | | | 1.010 | | (N/S) | 76.32 | | 57E-08 | | | | | | |
| PRESS | - | | ŕ | | • | | TAS | | | 2 9. | | | | | | • |
| | | | | | | | | | | | | | | | | |

TAS (N/S) 75.73

Z 2.53E-06

PRESS (MB) 1026.40

FLT F74-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE1 RAIN INTEQVAL START -23134149

MARINE BOUNDARY LAYER STUDY Scatter frobe data

T 18.78C

PR ALT (KM)

2

4ED D 5

MED 0 7

PRESS (MB) 1126.63

PARTICLE SIZ_ DISTRIAUTIONS SIZE (MU) NUMBER/(4++3+MM)

PRESS (M9) 1)26.51

-.11 r 11.110

PARTTCLE SIZE DIST PLAUTIONS SIZE (MJ) NUMBER (14033-141) 6 3,035-07 6 3,035-07 8 9,035-07 10 2,228-07 8 9,325-06 11 12 12 15 05 15 05-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,295-06 14 0,205-06

PR ALT (KN)

FLT E79-27 PN 22 MAK 79 20 Sefond Augrafing types rain Interval statts 23434139*

FLT E79-27 ON 22 MAK 79 20 SECONJ AVERASING TYPE1 RAIN INTEPVAL STATTI *23129159*

MARINE BOUNDARY LAVER STUDY Scatley Frobe Data

MARINÉ DONJAPY LÁVER STUDY Scatter frobé data

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PR ALT(KH)

1.235+00 1.265+68

T 10.77C

3.71:4.7 1.245:407 2.675:407 2.675:406 2.475:406 2.475:406 2.475:406 1.655:406

TAS (H/S) 75.66

2 6.74E-88

8036890303688 44444000000

145.67 (8/H) 241 Z 9.61F-08 HED D 7

4.14E-J5

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4ED D 7

3.526-35

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MED 0 7

2.545-15

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MSS 6 ---- 100 ft.

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 SECOND AVERAGING TYPE & RAIN INTERVAL START + 2313U 159* 5

10.480 ALT CKHI £ PARTICLE SIZE DISTRIGUTIONS SIZE(MJ) NUMBER/(4**3~MM) Z 1.15E+88 9011009011099 7777700001100

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--11 75.06 (S/H) 2 1.41E-07 TAS 1.01 1.02 1.03 1.03 1.03 1.03 1.03 1.05

PR635 (M9) 1326.14 FLT E79-27 ON 22 MAR 79 20 Second Averasing type: Rain Interval State *2313139* TAS 1ED D PARTICLE SIZE DISTRIJUTIONS SIZE (MU) NUNBER/ (44.3-4M) 2 1.177-0.8 4 2.165-07 6 2.265-07 8 4.725-06 1.745-35 ;;; ŝ PRESS (MB) 1826.59 ~ MED 0

T 16-68C 2 7.345-06 PR ALTCKHI TAS MED 0 7 PAATICLE SIZE JISFRIJUTIONS 512E(MU) NUHER/(4493-MH) 4 11.12-08 6 11.335-07 8 1.532-07 8 1.522-07 10 6.402-06 12 6.402-05 12 7.952-07 12 7.952-07 12 7.952-05 14 7.952-05 41-361.4 ŝ 8895500955000 88777778 PR ALT (101) (S/H) T 11.72C Z 6.37E-09 ŝ

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1826.34

PRESS (MB)

FLT E79-27 ON 22 MAR 79 20 SECOND AV:RAGING TYPE: RAIM INTERVAL STATT *23:52:149*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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(M/S) 77.76

FLT F79-27 ON 22 MAR 79 20 SFCONJ AVEF45ING TYPE1 KALN INTERVAL ST44T1 *2313299 MARINE BYUNJARY LAYER STUDY Scatter Frobé data

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A. T (K4)

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T 11.510

PKESS (M9) 1026.31

PRESS (MB) 10 26 .47 PR ALT (KH) T 10.56C

12.97 76.20

TAS

...................... .195+05

14.77 12.41

TAS

Z 1.58E-87

2 1.576-09

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6.735-08

N

(1/2) 75.92

TAS

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4.224-05

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ME0 0 5

1.935-15

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160 0 7

3.41É-35

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FLT 579-27 CN 22 MAR 79 20 SECOND AV-24.1MG TYPE: AAIN INTERVAL 51431 -23131459* MARINE BOJNDIAY LAYEK STUDY Spate? Paobe data

MARINE BOUNJARY LAYER STUDY Scatter Proge Data

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PARTICLE ST24 JISTRIJUTIONS 5126 (MU) NUMBER/1408 4 14.4508 4 3.45507 6 1.77517 8 7.25506 14 8.025505 14 8.025505 14 8.025505 12 8.06505

-.11 1926.28 11.045 PRE25 (M9) AL T (KH) FLT E79-27 ON 22 MAF 79 20 SECONJ AVERASING TYPEI RAIN INTERVAL START #23131129* ¥ SARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER/(M**3+MM) 1-15E+48 1-19E+08

64

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4.53E-15

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PASS 6 --- 100 ft.

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 Second Averacing type: Rain Imterval start: #23:32:59* 20

PAATICLE SIZE DISFRIJUTIONS SIZE (MJ) NUHBER/14+3-HM) 2 1.2.2.408 4 3.2.2.616 6 3.2.1.2.616 14.697 10 3.1476 12 4.692+66 PRESS (MB) 1)26.22 -.11 (H/S) 76.05 T 10.43C Z 5.06E-08 PR ALT (KM) TAS > ARTICLE SIZE DISTRIBUTIONS SIZE(MU) NUMBER/(4**3-4M) 2 1.47548 4 1.41548 6 2.6535407 8 1.565407 10 1.046406 12 8.2256405 14 1.645406 ;;;; •

(M/S) 81.56

TAS

4.64E-09

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1.57E+06 7.932+05

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4ED D

1,302-35

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MED D

5.27E-15

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PRESS (M9) 1008.47

FLT E79-27 ON 22 MAR 79 20 Second Averajing types rain Interval starts \$7334119*

FLT E79-27 DN 22 MAR 79 20 SECOND AVERAJING TYPE: RAIN INTEPVAL JTART *23133439*

MARINE BOUNDARY LAYER STUDY Scatter proge data

MARINE BOUNDARY LAYER STUDY Scatter probe data

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, 1.4

å, T 11.62C

PR ALT (KH)

PARTICLE SIZE DISFRTUTIONS 51 ZF (MU) NUMBER/(4443-444) 2 8.782-417 4 7.862-407 6 1.4565-407 8 3.412-40

PRESS (M9) 1322.42 PR A_T(KM) -.05 9.610 (M/S) 79.65 1.556-07

MARINE BOUNDARY LAVER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 Second Averaging type: Rain Interval Statt *23:33:19*

PARTICLE SIZE DISTRIJUTION SIZE(NU) NUMBER/14*03-MH 2 9.822407 6 9.822407 6 2.652407 6 2.652407 10 2.652406 11 2.365406 12 3.466405 12 3.466405 12 14 7.952405 14 7.952405 14 7.952405 20

| PAPTICLE SIZE Size(MU) NU | Q & N | 8 D (| 2 4 9 9 | 18 26 22 | 2 6 Q t |
|------------------------------|------------------|----------|--------------------|----------------|---------|
| PRESS (M9) 1126.12 | PR A_T(KM) 11 | T 10.14C | TAS (M/S) 77.49 | Z 7.90E-08 | |
| SNO | | | | | |

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|--------------|---------------------|
| R <1 ATA | MAK Pei 1331 |
| LAYĖ Bė J | 22 17 • 23 |
| JF Y | 21 NG |
| CNUC Far | 27 |
| SC A1 | E79- |
| ARIN | FLT FCON NTER |
| £ | 20 2 |
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ZIN.

D1STRT3UTI 496R/(4*3-1.370+35 1.310+35 3.590+07 5.355+06 5.355+06

| RIGUTIONS | PRESS (M9) | PA-TICLE ST 75 (MI |
|-----------|-------------|-----------------------|
| | | 2 |
| ÷0.6 | PR ALT (KM) | t |
| +0.7 | 02 | £ |
| +06 | | •0 |
| | T 9. 53C | 10 |
| | | 12 |
| | TAS (M/S) | ** |
| +C5 | 81.73 | 16 |
| | | 1.6 |
| | Z 3.576-08 | 26 |
| | | 22 |
| | | 42 |
| | | |

E SIZE DISTRIJUTIONS 2.2.85407 2.3.42.407 2.3.42.407 5.2.41.405 1.456706 1.856706 1.833405 1.833405 5.81 - 16 ŝ 9.00

(S/H) 79.95

TAS

Z 3.99E-09

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T 14-11C

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAIING TYPE 8 RAIN INTERVAL STATT *73+34439* MARINE BOUNDARY LAYER STUDY Scatter Frobe Data ž

PRESS (M9) 1061.02 .10 ALT (KH)

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FLT E79-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval Start: *23130159* MARINE BOUNDARY LAYER STUDY Scatter probe data

MARINE GOUNDARY LAVER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 Second Averasing type: rain Interval Start: *23:39139*

| SIZE UISTRI JUTIONS |) NUMBER/(4++3-44) | | 6.135+07 | 1.055467 | 3.285.66 | 8+235+65 | 6.22E+05 | 0 • | •0 | • 2 | .0 | 0. | •• | .0 | ÷. | |
|---------------------|-----------------------|-----------------|-------------|-----------|----------------|----------|----------|------------|----------|-----|------------|------------|------------|----|----|---------|
| PARTICLE | 51 2 F (HU | J | 5 | s S | • | 10 | 12 | 41 | 16 | 16 | 30 | 22 | 54 | 26 | 29 | 39 |
| PRESS (H9) | 1002.52 | | PR ALT (KM) | 60. | | T 13,720 | | TAS (H/S) | 77.06 | | Z 4.0TE-08 | | | | | |
| IZE DISTRIJUTIONS | NU MBER/ (Nº 4 G-MM) | | 2.596+07 | 5.67E+06 | 1.625+06 | 1.625+65 | 8.085+05 | а . | 8+r6E+i5 | .0 | | . . | . 0 | | • | ڊ. • |
| PAPTICLE S | SI 2F (MU) | N | t. | g | • =0 | 10 | 12 | 44 | 16 | 18 | 20 | 22 | 24 | 36 | 26 | 30 |
| PRESS (MB) | 1002.58 | | PR A_T(KM) | 60 | | T 13.180 | | 14S (4/S) | 77.57 | | Z 7.15E-09 | | | | | |
| ZE DISTRIJUTIONS | VILLARE R/ CHAN T-MM) | 2 • / 8 = + 0 / | 3.785+07 | 6.435 +16 | 8. 9 2 E + 0 5 | | 8.02E+05 | | | | | .0 | 0 . | | - | |
| PARTICLE ST | SI 7F CMJD | N | | | | 1.0 | 12 | 9 7 | 16 | 18 | 20 | 22 | 42 | 26 | 28 | 8 |

TAS (4/5) 76.42

Z 1.16E-09

4€0 0 2

PRESS (M9) 1003.26 PR A. T(KH) .05 T 11.670

FLT E79-27 ON 22 MAR 79 20 Second Averating Type1 Raim Interval Statt +2346119*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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| R STUDY ATA | MAR 79 PE: Rain 140139* | PRESS (* | PR ALT (| | T 13. | TAS (M | | 2/847 2 | | | |
|---|--|--|------------------------------|----------------------|----------------------|-----------|-----------------|------------|-----|-------------------|----|
| MARINE BCUNDARY LAYEI Scatter Probe Di | FLT E79-27 DN 22 D Second Averaing tv Interval Statte 423 | LLE SIZE DISTRIAUTIONS (MU) NUMBER/(4443-444) (523 A.7 | | 7.12E+06 3.14E+00 | 3.155+66 0. | • | | • • • | ••• | ••• | |
| | N | PAPTIC Size(| N 41 | ଦେଇ | 1. | | 10 | 22 25 | 42 | 3 8 5 8 5 8 | 30 |
| k STUDY ITA | 1AR 79 2E1 RAIN 134559+ | PRESS (MB) 1302.76 | PR 4.T(KH) | 60. | T 13.13C | TAS (M/S) | 76.91 | Z 4.13F-D9 | | | |
| HARINI BOUNDARY LAYER Spatter froge da | FLT 279-27 ON 22 H Second Averaging Tyf Interval Statt +23 | SIZE DISTATENTIONS (MM-TT+P)/ABER/ (MM-TT+P)/ABER/ (| 0+3-5+62 9+5 T 2+62 | 6*+9⊏+06 2*43⊡+06 | 1.63E+C6 8.18:465 | 0 | 8.1 75+05 0. | •• | 9. | | |
| - | 5C | PARTICLE SIZE (MU. | t. 17 | କେ | 1 | 12 | 16 18 | 22 | 24 | 28 28 | 30 |
| t STUDY Ita | 18.79 26.6.41. 139194 | PRESS (M9) 10 (1 +82 | PR A. T (KH) | .10 | T 13.74C | TAS (H/S) | 77.01 | Z 6**9E-09 | | | |
| ARINE BOUNDARY LAYÉR Scattér Froge Da | FLT F73-27 ON 22 F Econj Avepasing Tyf Ntepval Statt +231 | SIZE DISTRIJUTIONS NUMBFR/EMAJ-MM/ | 5+622+47 3 *975+67 | 8.125406 4.855406 | 0.37E+05 | | ••• | | | | 6. |
| I | 20 S I | PARTICLE SIZE(MU) | t. 11 | 40 eo | 11 | 12 | 9 9 7 7 | 24 22 | 54 | 28 28 | 30 |

- 54

PRESS (49) 1002.43

PR ALT (KM) .09 T 13.020 145 (M/S) 79.51

Z 1.07E-08

4ED D 7

j. 1.13E-75

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#ED D 9

1.395-15

LHC

4ED 0 6

9-956-16

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MARINE BOUNDARY LAYER SJUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 Second Averaging type, rain Interval Start: *23:40:59*

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAJING TYPE1 RAIN INTERVAL START *23141139* MARINE BOUNDAPY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 Second Averajing typer rain Interval state =23142149*

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

PRESS (MB) 1002.39

6. 12.050

ALT CKH)

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17.84

TAS

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PATTCLE STZE DISTRTJUTIONS >126(MJ) NUMBER/1403-MM) 2 9.05607 4 9.05607 6 2.95507 10 8.12546 10 8.12546 14 7.845405 16 0. 18 0. 18 0. 20 0. PRESS (M9) 1803-26 A_ T (KH) .09 (M/S) 76.13 T 12.19C Z 1.12E-07 TAS ž PARTICLE SIZE DISTRIJUTIONS Size(NJ) NUMBER/14+*3-HM) 5 4 7.165+67 6 1.465-67 8 1.045-05 10 8.605-07 10 8.065-07 10 8.065-05 7.983+05 0. . PRESS (MB) 1001.60 (S/H) 79.52 .10 14.560 ALT (KH)

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Z 3.J3E-09 ŝ TAS 4E0 D PARTICLE SIZE DISTRIBUTIONS SIZE(MJ) NUMER/(140-3-144) 4 1.805-07 6 1.805-07 6 3.915-06 8 7.835-05 10 7.835-05 14 0. 12 0. 14 0. 16 0. 4.10 č- 36 . S

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MARINE BOUNDAPY LAVER STUDY Scatter probe data

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FLT E79-27 CN 22 MAR 79 20 SECOND AVERAJING TYPE: RAIN INTERVAL START: "231441049"

PAPTICLE SIZE SIZE (MU) NUM PRESS (MB) 1062.13 PAPTICLE SIZE DIS/419UTIONS SIZE(HU) NUMBEN/(H**3-4M) 2345-47 6 2.354-647 6 2.354-647 10 2.354-64 10 7.94-65 14 0. 14 0. 14 0. 14 0.

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FLT E79-27 ON 22 MAR 79 Second Averaging type: rain Inteoval Statt *2344159* MARINE BCJNJAPY LAYER STUDY Scatter probe data

MARINE BCUNDARY LAYER STUDY Scatter Froge Data

FLT E79-27 CN 22 MAR 79 20 SECOMO AVEPASING TYPE1 RAIN INTERVAL 514211 *23142139*

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7.79.415

Z 3.39E-08

18.87 78.34 Z 5.36E-08

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PARTICLE SIZE JISTRI JUTIONS SIZE(NU) NUHBER/14+3-WH) 2 7.495-07 4 6.622-07 6 8.575-66 2 .464545

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SIZE DIST 91 JUTIONS NUMBER/ 14003 3.3 46-47 3.5 86-47 4.4 5.47 7.9 95 8.95 7.9 42 405 7.9 42 405 8.4.7 6.05 8.4.7 6.05 8.4.7 6.05

PR ALT(KH) .09

2 2 \$

T 14.48C

(H/S) 78.43

TAS

AL T (KM)

12.86C

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PRESS (M9) 1002-59

PRESS (MB) PR A. T(KH)

FLT E79-27 ON 22 MAR 79 20 Second Averasing type: Rain Interval Statts +23142159* MARINE BOUNDAPY LAYER STUDY Scatter Probe Data

FLT 579-27 ON 22 MAR 79 20 SECONJ A42RASING TYPL9 RAIN INTERVAL STARTI #23453339* MARINE BOUNDARY LAVER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOMD AVERAGING TYPE1 RAIN INTERVAL 514371 *23144819* MARINE BOUNDAPY LAYER STUDY Scatter Probe Data

PKESS (MB) 1802.25

PR A.T(KH) .00 T 14.51C TAS (M/S) 78.79

Z 3.21E-08

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| 942-07 942-07 912-07 182-06 192-06 192-106 192-106 192-106 192-106 2-3125-0 | ж | PARTICLE STAT ATTRE (ALE STAT ATTRE (AL) ATTRE (AL) ATTRE AT |
|--|---|--|
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| IARINE BOUNJARY LAYER STUDY | MARINÉ BOUNJ |
|-----------------------------|-----------------------------|
| Scatted Probe Data | SCATTÉ? |
| FLT E73-27 ON 22 MAR 79 | FLT 579-27 |
| Seconj Averasing types 4ain | 20 SECOND AVER ⁴ |
| Miteval 51471 =2354719 | INTERVAL 513 |

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| MARINÉ BOUNDAFY LAVER STUDY Scatté? Frore data | FLT 779-27 DN 22 MAR 79 20 Second Averating Tyfei Rat Intequal 512214 +23143159* |
|---|--|
| BOUNJARY LAYER STUDY Catter Probe Data | 73–27 ON 22 MAK 79 Averasing type: Kain Alstati *23:47:19* |

FLT E73-27 ON 22 MAR 79 24 SECOND AV645IMG TYPE1 RALN 1NTE2VAL 5143T1 *23144139*

MARINE BOJNJANY LAYER STUDY Scatter Probe Data

| PRESS (1302 | PAPTICLE SIZE ∪ISI'ITUTI (MP-2**1)/5-2000 (LH) 2 5-55:2000 CLH) 2 5-55:2000 CLH | PRLSS (M9) 10(3.35 | XTICLE STLE DISTRI3UTIONS (126(MU) NUMRER/(44+3-44) 2 b.19€→7 |
|--------------------|--|-----------------------------|--|
| 11 KALN 13 859* | FLI -14-41 UN CL MA 20 SECOND AVERATING TYPE Interval statt +234 | 14 79 28 кАІ N 571198 | FLT ET3-27 ON 22 M 24 SECONJ AVERASING TYPE INTERVAL STATE +2384 |

| (44) | PAPTICLE S | SNCITUE 191210 321 | PRE SS (49) |
|------|-------------|-------------------------------|-------------|
| 5 | 5 (MJ) 2 | NU49567 (4443-44) 5.7.54.7 | 19.5301 |
| Ŧ | t | 2.935+07 | PR ALT (KH) |
| 60 | Q | 7.1 3= +06 | 60. |
| | *0 | 3.167+06 | |
| Сб | 1. | | T 14.79C |
| | 12 | 0. | |
| S | 14 | | TAS (H/S) |
| | 16 | 0. | 78.75 |
| | 18 | в. | |
| 60 | 26 | | Z 3.296-09 |
| | 22 | | |
| | 7 | 0. | |
| | 26 | 0. | |
| | 28 | | |
| | 30 | ů. | |

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4ED D 5

LMC 0.911-36

MED 0 5

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6.56 3.56 1.25 5.26 1.25 7.46 1.25 7.46 1.25 9.875-16 ;; Ľ 3003030900 200000 200000 110 (S/H) .08 2 4.545-09 1013.35 PR A.T (KH) I 13.65C TAS 4ED D 5 Î RER/(4*3-4 6.195+47 4.845+07 1.275+67 7.475+05 7.475+05 7.485+95 9.51E-06 • . . .

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MARINE BOUNJARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE1 RAIN INTERVAL START: *2344459*

PRESS (49) 1023.31

.08 T 14.390

PR A.T(KH)

PAATICLE SIZE DISFRTJUTIONS SIZE(MJ) NUMBER/(***?***) 2 **725*.7 4 3.457507 6 7.972506 8 3.152406

FLT E79-27 ON 22 MAR 79 20 SECTUD AVERALING TYPE1 RAIN INTERVAL START *23454399 MARINE SOUNDARY _AYER STUDY Scatler Probe Data

| (44) (11,03 | 1 (KH) . 03 | 5.480 | (M/S) 78.76 | 26-33 | |
|--------------------------------------|--|-------|------------------------|---|--------------------|
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| | | | | | HEU |
| 12= UISTR13UTION= 204952/4==3-44) | 3. c 9 c + C 7 7. h 1 c + C 7 7. h 7 c + D 5 | | | | 16. ₩C ≟.5ë ~JE |
| PARTICLE > SIZE(MU) 2 | 13.0 ¢ | 24 |) J 00 ac ++ ++ + | 0 D N 3 U Q (N N N N N N (N N N N N N | ۲ 32 |

TAS (#/S) 79.21

7.875+05

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Z 0.51E-06

7.885+05

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PRESS (H9) 1303,28 PR A.T (KH)

FLT F79-27 ON 22 MAR 79 20 Second Augrasing typet rain Interval statt +23146199

MARINE BOUNDARY LAYER STUDY Scatter Probe data

(F/S) 76.95

TAS

Z 3.35E-08

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460 D 10

1.155-15

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450 D 8

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T 15.79C

PAKITCLE SIZE "ISTRIJUITONS SIZE(MJ) NUMBER/14003-4M) 2 2.424-67 4 2.456-67 6 3-94-66 8 2.465-06 14 1.994-06 14 1.994-05 12 2.945-05 14 2.405 14 2.

| lupv | 61 |
|----------------|-------|
| rer S 04TA | 2 MAR |
| 97 [A F209Ε | C × 2 |
| CALLES | 79-27 |
| S I A P H | 5,15 |

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|-------------|-----------------------|
| 8 | 1487 151 1651 |
| 4 1 1 | 22 - 178 • 23 - |
| | N UNC |
| <u>.</u> | 27 |
| PC P | 579- 10 A L |
| | FLT SECON INTER |
| | 2 |

| INTERVAL STARTE #251451194 | ICL: SI7E ~ IST 21 JUTION. PRESS (* E(MU) NUMBER/(4**1-4M) 1303. 2.25.87 | с с с с с с с с с с с с с с с с с с с | 0 1.57.763 0 7.855-465 7 1.5.5 |
|----------------------------|--|---------------------------------------|-----------------------------------|
| | SIZE (MU | 9 JP 40 4 | ° 3 |

| | PAPTICLE SIZE SIZE(MJ) NUM | a. e 10 | с ов 1- |
|---------|-------------------------------|--------------------|------------|
| 145119* | PRESS (M9) 1303.07 | PK ALT (KM) .09 | T 15-50C |
| -53 | UN NO | | |

MARINE ODJNJAY LAYER STUDY Scat. 2 FHOBE DATA

FLT 573-27 ON 22 MAR 79 Second Averasing type: Rain Interval Start: *23145159*

FLT -73-27 ON 22 MAR 79 20 SFCOND AV245145 TYPE1 KAIN INTC#VAL 27371 *23146139*

MARINE BOUNTAR LAVER STUDY Scatter Frome Data

PacSS (M9) 1002-79

PRESS (M9) 1003.25

÷0, T 16.16C

PR ALT (KH)

TAS (M/S) 78.02 ÷. T 15.50C PR ALT (KH) -0 Z

PAKTICLE SIZE JISTAT 3411LONS SIZE(MU) NUMBERVI40054440 31.72407 4 1.72407 5 336546 1.56546 1.565406

TAS (4/5) 79.37

2 3.74E-09

88857888857888 48788855555

7.935+05

(H/S) 78.66

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Z 1.47E-0A

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C N

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5.925-36

L NC

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MARINE BOUNDAPY LAYER STUDY Scatter Probe Data

FLT L79-27 ON 22 MAR 79 20 SECOND AV59451MG TYPE1 RAIN INTEGVAL 2743T1 *23146859*

MARINE BCUNDAFY LAVER STUDY °Catter Probe Data

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FLT E79-27 ON 22 MAR 79 24 SECOND AVERAGING TYPE1 KAIN INTERVAL STARTI *23147139*

FLT 679-27 ON 22 MAR 79 20 SECTND AVERAGING TYPE: RALN INTEPVAL START *23:48149*

MARINE BOUNDARY LAYER STUDY SCATIER PROBE DATA

PRESS (MB) 391.82

PR A_T(KH) .13 15.370

PAPTICLE SIZE JISTRIJUTIONS SITE(MU) NUMBER/(44+7-4M) 2 2.895+07 4 2.285+07 6 7.15+06 8 2.315+06

(9.67 79.62

TAS

7.075+45

0

20+306*4

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Z 3.5JE-06

MED 0 8

1.245-15

L NC

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| PRESS (49) 1900.34 | PR A_T(K4) | T 15.98C | TAS (M/S) 81.32 | Z 1.7+t-09 | 5 0 0 |
|---|----------------------------------|---------------------------------|------------------------|---|-------------------|
| <pre>c DISTRIBUTIONS id MBER/(M##3-MM) 2.685+07</pre> | 2.,75+07 3.946+06 | 1.54≟+Co 0. 0. | ••• • • • | | 0. 3.39£-3€ 4≦ |
| PARTICLE SIZ Size(MU) N 2 | Qu t | 8 11 20 21 20 21 | ा ज की क स्थित | 1 N N N N N N N N N N N N N N N N N N N | 39 140 |
| PLESS (48) 103.77 | P. A_T(KM) .08 | T 16.230 | TAS (4/5) 78.94 | Z 1.+05-09 | EC 0 5 |
| ZE JISTRIJUTIONS NUMBER/(4+3-MM) 2.372457 | 2 • 3 7 E + 0 7 4 • 7 4 E + 6 | 7.797+65 0. J. | | | 0. 3.39£-16 |
| PAPTICLE SI SIZE(MJ) P Z | ص و | 8 0 1 2 | । १ भी ब । स्थ मा न | 5 6 6 5 6 6 6 6 6 6 7 6 6 6 6 | 200 30 |

FLT 579-27 CN 22 MAG 79 23 SLOOND AVERASING TYPLI FAIN INTEDVAL START *23447129* MARINE GENJAPY LAYER STJDY Scatter Probe Data

FLT 579-27 DV 22 MAR 79 20 SFC2MD AV524JINS TYPE1 24IN INT54VAL START -23447159+

MARIN, BOUNDARY LAYER STUDY Scatter, Pogae Gata

PRESS (MB) 393.65 (5/#) PR A_T(KH) T 15.505 2 4.376-09 TAS :: **「るうれていのかっ**」の PHEUS (49) 1061.80 (S/H) .10 T 16.17C 2 2.0LE-09 PR A.T(KH) 145 PAATICLE SIPE OISTPIAUTIONS SIZE (MU) NUMBER(1400 5-44) 2.595 4-7 2.595 4-7 4 1.1546 405 1.2446 ;;

FLT E79-27 CN 22 MAP 79 24 SECOND AV. 451NG TYPE1 RAEN INTERVAL START *73148139* MARINE BOUNDAFY LAYER STUDY Scalt_? FROBE DATA

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PREJS (MB) 391.42 517. PARTICLE S

TAS (M/S) 81.40 PR ALTIKMI .19 15.310 2.256-05 -217-2 DIST 4731210 216-2 20 216-2 20 216-2 20 216-2 20 217-2 7.65.0+65 ; ھ COUTOBOUTOOS

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3.73.-76

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PASS 8 --- 1000 ft.

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE: RAIN INTERVAL START: *231541595

| PRESS (MB) 990.97 | PR A_T(KH) .19 | T 15.35C | TAS (M/S) 76.94 | Z 6.02E-08 | 0 12 |
|----------------------------------|-------------------|---------------------|--|-------------------------------|-----------|
| I 9UTI ONS 4 ** 3-4#) E+07 | C+07 C+56 | × 40 5 35 5 4 | E + 6 5 | | -35 HEA |
| SIZE DISTR) NUMBER/(3.32 | 2.51 | 2.4 | 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | LHC 1.51E |
| PARTICLE SIZE(MU 2 | ه ه ه ا | 12 | 4 9 8 4 9 8 | 0 N 3 0 80 5 N N N N N N M | ; |

TAS (M/S) 79.35

Z ..12E-09

2 2.746-09

TAS (M/S) 78.71

PARTICLE SIZE DISFRIGUTIONS SIZE(MJ) NUGHER/(M+3-MH) 5 2 (MJ) NUGHER/(M+3-MH) 6 3 3-976(7 6 7.136(07 6 7.136(07 110 0.2356+06 110 0.2356+06 114 0.2356+06 114 0.2356+06 114 0.2356 144 0.0 146 0.0 20 0.0 200

MED 0 5

4.415-16

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4ED 0 5

5.895--36

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T 15.23C

PARTICLE SIZE JISTRIJUTIONS SIZE(MU) NUHBER(1949-5-4M) 2 2.1551-407 4 2.2502-407 6 3.922-405 4 7.952-405 10 7.952-405 12 4 14 0. 16 0. 16 0. 20 0. 22 0. 22 0. 22 0. 22 0. 22 0. 20 0. 22 0. 20 0. 22 0. 200

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PR A.T(KH)

PRESS (MB) 992.81

PRESS (H9) 392.13

.18 T 15.38C

PR ALT (KH)

FLT 279-27 ON 22 MAR 79 20 Second Averaging type: Rain Interval 51431 *2315219*

FLT E79-27 ON 22 MAR 79 20 SECOND AVERASING TYPE: RALN INTERVAL START: *23:51:39*

MARINE BOUNUARY LAYER STUDY Scatter probe data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 Second Averaging Type: Rain Interval Start: "23151219" 51

| PRESS (MB) | 391.63 | | PR ALT (KM) | .10 | | T 15.39C | | TAS (H/S) | 77.67 | | 2 3.10E-09 | | | | | |
|--------------------|------------------|----------|-------------|----------|----------|----------|----|-----------|-------|----|------------|----|---|-----------|----|----|
| SIZE DISTRIGUTIONS | NU48FR/(4++3-4H) | 2.335+07 | 2.815+07 | 9.641406 | 2.+15+06 | . | • | . | | | • | | | 6. | | 0. |
| PARTICLE | SI ZE (MU) | 2 | 4 | 9 | =0 | 10 | 12 | 41 | 16 | 10 | 6 2 | 22 | 4 | 26 | 28 | 30 |

| 20 SECOND AVER | PAPTICLE SIZÉ DISTR | ນ ຜູສະ |
|----------------|---------------------|---------------|
| INTERVAL ST | Size(MU) NUMBER/(| |
| z | (MB) 91.63 | F (KM) •18 |

| 5115 | PR | ų, | ⊢ | TA | 2 | | |
|------|--------------|--------------|------------|--------|--------|-----|-----|
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ESS (M9) 992.55 ~

S (M/S) 80.01 4. T (KH) 17 15.370 6.565-09 #E0 0 7

PARTICLÉ SIZE WISKT3UTIONS Size(MU) NUMBER/1443-44) 4 2.004:07 6 4.8345407 8 2.446466 10 7.995405 12 7.975405

PR ALT (KH)

TA. (H/S) 78.04 T 15.26C Z 9.63E-09

4ED D 7

7.026-36

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6.705-36

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4ED D 5

6.57č-06

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PRESS (MB) 992.57

FLT 579-27 ON 22 MAR 79 20 Sefonj averasing type: kain Interval statt *23:52:39*

MARINE BOJNJARY LAYER STUDY Scatter Probe data

MARINE BOUNDARY LAYER STUDY Scatter Probe Data

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PASS 8 --- 1000 ft.

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MARINE BOUNJARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAR 79 20 Second Averasing type: Rain Interval statt *23152159*

FLT 279-27 ON 22 MAR 79 20 Second Averasing type: Rain Interval 5143t1 +23153139+

MARINE BOUNDAPY LAYER STUDY Scatter, probe data

(S/H)

TAS

8.642+05

+

Z 1.79E-D8

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Z 7.34E-09

(M/S) 78.96 14.775

TAS

7.885+15

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8.635-16

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4ED D

5.68E-JE

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4ED D 5

5.95 - 16

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S (HB) 992.67

PRESS

PARTICLE STZF DISTRIGUTIONS SIZE(HU) NUMBFR/(M++3-4M) 2 4.18E+4.7

PRESS (M9) 995.26

FLT E79-27 ON 22 MAR 79 26 Second Averaging type: Rain Interval Start: *23154119*

MARINE BOUNDARY LAVER STUDY Scatter probe data

.17 14.530

2.175+07 4..15+06 3.225+06 8..15+05

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PR A.T(KH)

PR A.T (KM)

MARINE BCJNJAPY LAYER STUDY Scattér probe data

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FLT E79-27 DN 22 MAR 79 70 SECOND AVERGING TYPE: RAIN INTERVAL START *23153119*

PRESS (MB) 394.82 PARTICLE SIZE DISTRIJUTIONS SIZE(MU) NUHSER/(M** 3-MM) Z 5.7 5.5 407 4 3.4 55.407 6 1.4.2 2 407 8 1.572405

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FLT E73-27 ON 22 MAR 79 Sefond Averasing type: Kain Intepval statt *23153159*

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TAS ~ PAKTTCLE SIZE UISTRTJUTIONS JIZE(MU) NUGBERTATATTONS Z 2.892.4.7 4 2.4412.465 5 2.412.465 9 8.4322.45 10 8.4322.45 10 8.4322.45 •

(S/H) 79.45

TAS

*81C+15

7.336-09

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T 14.45C

A. T (K4)

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PRcus (49) 993.94 (N/S) 77.76 .15 15.01C 4.88E-09 PR A.T(KH)

FLT E79-27 CN 22 MAK 79 20 Second Aveq45ins type1 Ratn Intepal Statt +231541394 PARTICLE SIZE CISFRIJUTIONS SIZE(MU) NUNBER/(14*9-4M) 2 3552+07 4 2.375407 6 6.2914-6 8 4.727+06

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MARINL BOUNJAPY LAYER STUDY Scatte? P208E Data

MARINE BOUNJAFY LAYER STUDY Scatter proge data

Press (M9) 393.60 78.99 .16 T 14.86C (N/S) Z 2.71E-08 PR A_T(KH) TAS 23+3:00-2

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9.236-16

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3.72E-36

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8.70E-16

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PASS 8 --- 1000 ft.

MARINE BOUNDARY LAYER STUDY Scatter probe data

FLT E79-27 ON 22 MAK 79 Second Averaging type: Rain Interval Statt: *23154159*

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PRESS (MB) 993.33

FLT E79-27 ON 22 MAR 79 20 SECDUN AVERAJING TYPE1 RAIN INTEPVAL START *23456419*

FLT E79-27 ON 22 MAR 79 Second Averaging type1 rain Interval Statt *73155139*

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MARINE BOUNDARY LAYER STUDY Scatter Probe data

MARINE BOUNDARY _AYER STUDY Scatter probe data

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PR A.T(KH)

PARTICL SIZE DISTRIJUTIONS SIZE(MU) NUMERV.4000 7.52E07 4 5.22007 6 1.25507 8 1.25507 1.265905 1.900 1.000

.17 T 13.36C

PR ALT (KM)

PRESS (H9) 392.40

.17 12-690 (S/H) 80.06

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Z 3.23E-09

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2 3.535-09

(N/S) 78.80

TAS

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PARTICLE SIZE DISFRINTIONS SIZE(MU) NUMBER/(44+3-4M) 2 7-512-(7 4 4-112-07 6 12-65-07 8 2-395+06 PRESS (M9) 993,92 (H/S) 79.35 .15 T 14.650 Z 2.34E-09 PR ALT (KH) TAS ~ #E0 0 PAPTICLE SIZE DISTRIBUTIONS 21ZE(MU) NU49EP/(4*3-4M) 22.013-07 4 2.442-07 6 7.452-06 8 1.5² 2.06 0. 7.955405 7.865405 9.-215-16 3 Š

FLT 279-27 ON 22 MAR 79 Second Augasting type: Rain Inteoval start: #23155119* MARINE BOUNDARY LAVER STUDY Scatter Frobe Data

20 PARTICL SIZE(M 2

| | FANTICLE SI Size(MU) P Size(MU) P | • ۍ د ا | 0 1 | 1300 144 147 |
|---|--|---|------------|--------------------|
| | PReSS (48) 354.69 | PR ALT (K4) .16 | T 13.85C | 18.08 80.87 |
| 1 | LÉ SIZE ÚISTRÍJUTIONS MJ) NUMBER/14003-4M) E 11213 | 3 • • • • • • • • • • • • • • • • • • • | 4.815+05 | |

| MAPINL BCJNJARY LAYER SIJDY Scatter probf data | FLT 279-27 UN 22 MAF 79 20 SECOND AV2-A5145 TYPE1 RAIN INTERVAL STARTE +231551594 |
|---|---|

| .06191213 | MBER/ (4** | | 1 • 5 7 5 • 1 7 • 3 9 5 • 5 |
|--------------|---------------|------------------|--------------------------------|
| APTICLE SIZE | SI ZE (MU) NU | 1 - | |
| (MB) | 993.24 | AL T (KH) .17 | 13.38C |
| 30 | | č | ⊢ |

F SIZE TISTELUTIONS NUMBER(14+3-4+1) NUMBER(14+3-4+1) Suchard Suchard

| 993.24 | SI 2E (MU) | NU N3ER/ (4++3-4M) |
|------------|-------------|--------------------|
| | ر د، | 7.7454.7 |
| Pr ALT(KM) | t | 3* 2 4 1 + C 2 |
| 11 | Q | 7.845+66 |
| | æ | 1.575+66 |
| T 13.38C | 10 | 7.95+05 |
| | 12 | 7.85-405 |
| TAS (4/S) | 4 | 0. |
| 78.93 | 16 | 2.435.405 |
| | 18 | |
| 2 4.356-09 | 20 | |
| | 22 | . r |
| | 24 | . . |
| | 26 | . |
| | 28 | • |
| | 30 | |

4ED D 9.525-36 ;:

MARINE BOUNDARY LAYER STUDY Scatter Frobe Data

FLT E79-27 ON 22 MAF 79 20 SECOND AVEPASING TYPE1 4AEN INTERVAL START *23156139*

90.166 PorSS (49) TIONS

.15 T 12.875

(S/H) Z 3.79E-08 TAS

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Z 3.04E-09

PR ALT (KH)

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PASS 8 --- 1000 ft.

FLT E79-27 ON 22 MAP 79 20 second averasing type; rain Interval statt: *23:56159* MARING BOUNDARY LAYER STUDY Scatter probe data

FLT 279-27 ON 22 MAR 79 20 Second Averajing Type: 241N Interval Statt: 23:57:539* MARINE ROUNJARY LAVER STUDY Scatter Froge Data

FLT E79-27 ON 22 MAK 79 26 Secont Averaging type: Rain Interval Start: *23:59:19*

. Marinë boundary lavër study Scattër probé data

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| PRESS (MB) 994.73 | PATTICLE SIZE JISTALGUTIONS SIZE(MU) NUMBER/(1**3+MM) | 65°£66 (8m) 55374 | PARTICLE SI7L DIST SI 2E(HJ) NUMBER/ | (HP-5-5H) |
|----------------------|--|----------------------|---|--|
| | 3*+95+87 | (MALL CO | 2 | 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| PR ALT (KH) | | •16 | 6 5.56 | € € + Ú 6 |
| | 8 2.385+66 | | 9 • | |
| T 14.32C | 10 7.955465 | T 13.26C | 11 | 9.4.0 |
| | 12 | | | |
| TAS (M/S) | 14 0. | | · · · · · · · · · · · · · · · · · · · | |
| 78.03 | 16 0. | 78.55 | • · · | |
| | 18 0. | | • | |
| Z 2.15E-09 | 20 0. | 2 5.J9E-09 | | |
| | 22 0. | | • • • • • | |
| | 24 0. | | | |
| | 26). | | - | |

PARTICLE SIZE DISTRIJUTIONS SIZE(MU) NUMBER/(M**3-MM) 2 3562-47 4 2.562-407 6 6.462-405 8 1.602-405

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| NUMBER/ (M++ 3-4H) | 4 - 5 3 - + 1 | 2.7.5+07 | 5.562+06 | 0. | 1.59±+:0 | • | ; | • | .• | • | • | | 5. | 9. | • |
|--------------------|---------------|----------|----------|----|----------|----|-------|-------|----------|---------|----|------|-----|----|----|
| 21 2E (H)) | ~ | £ | 9 | 60 | 1 r | 12 | 1 | ۰. | <u>.</u> | 2. | 22 | 24 | 9.0 | 28 | 30 |
| 93.59 | | T(KM) | .16 | 1 | 3.260 | | (H/S) | 78.55 | | 9E - 09 | | | | | |

TAS (1/5)

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04°766 (64) 55324

.10 T 13.79C

PR ALT(KM)

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| MARINE BOJNJARY LAYER STUDY Sfatter Probe Data |
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FLT E79-27 CN 22 MAR 79 20 Second Ave-9451N5 TYPE1 RAIN Interval Statt +23158139+

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| MAZIN | а С INT - V |
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MARTNE BOUNDARY LAYER STUDY Slatter Probe Data

FLT E79-27 ON 22 MAK 79 20 SECOND AVERASING TYPE1 RAIN INTERVAL START *23157119*

| F252 (49) 994.53 | PR ALT(KH) .15 | T 13.64C | 145 (H/S) | Z 1.09E-09 | • |
|---|----------------------------------|----------------------|--------------------------|-------------------------------|--|
| × - | | | | | 151 |
| DIST 21 JUTION | 3.475447 3.315407 7.972405 | 2.375+06 1.585+06 | 1. 605 + US 8. 1. | | 0. 0. 1. 8. ** -]6 |
| - 212 1 UN | | | | | LHC |
| SIZE (MU) | ¢⊨tr. (0 | 4 | 445 | 6 0 0 4 0 0 0 4 0 0 0 4 | 36 96 36 9 |
| PRESS (M9) 993.86 | PR A_T(KM) .16 | 1 13.280 | TAS (M/S) 78.18 | Z 7.215-08 | 11 O U3W |
| ZE DISTRI JUTIONS NU MBER/ (M++3-MM) | 3.515+07 2.345+07 1.046+07 | 1.59°+06 7.97E+05 | 1.5 ũ ⊂ +ú 6 8. 8. | 7.98E+05 8. 0. | 6. 0. 5.5.6-15 |
| PARTICLE SI | N 3 4 | 0 0 1 | 12 | 9 0 0 0 0 1 1 0 0 0 0 1 | L 2000 3000 3000 3000 3000 3000 3000 300 |

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TAS (M/S) 78.39

Z 2.95E-0A

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PRESS (48) PR ALT (KH) 5-1-

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MARINE BOUNDARY LAYER STUDY Scatter Probe Data

FLT E79-27 ON 22 MAR 79 20 SECONT ANE-451N5 TYPE1 441N INTE-4444 47471 4-131541594

| PRESS (MB) | 993.96 | | PR A. T(KM) | .16 | | T 14.165 | | TAS (H/S) | 78.47 | | Z 7.96E-09 | | | | | - | • |
|----------------|------------------|----------|-------------|----------|---|----------|------------|-----------|-------|----|------------|----------|----|----|----|----|-------------|
| CISTAL JULIONS | J48ER/ (4**3-44) | 3.585+07 | 2.62E+07 | 3.97.+06 | | 7.425+05 | 7.952 tu 5 | .0 | | 0. | .0 | . | e. | ·. | • | | 6.095-Jb 70 |
| FARTICLE SIZE | NI (LM) 32 IS | ~ | | œ. | • | 10 | | 1 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | LMC |

AVER STODY PARINE

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| PRESS (M9) | 394.22 | | PR ALT (KN) | .16 | : | T 14.20C | | TAS (M/S) | 79.37 | | 2 1.495-07 | | | | | : |
|-----------------------|--------------------|----------|-------------|----------|---|----------|----|-----------|----------|----|------------|-----|----|----|-----------|------------|
| SNOTTHE TATISTIC - 41 | NU NBER/ (4003-HH) | 2.915+17 | 2.515+07 | 5.495+06 | • | 7.85E+05 | | 7.88 405 | 7.89E+05 | | 7.875+05 | • • | • | •• | • | . |
| a a t t c i E | SIZE (NU) | N | | - | • | 10 | 12 | 41 | 16 | 10 | 62 | 22 | 42 | 26 | 58 | 8 E |

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FLT E79-27 ON 22 MAR 79 Secony averating type: Rain Interval Statts +73459419*

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MARINE BOUNDARY LAYER STUDY Scatter Frobe Data

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FLT E79-27 ON 22 MAR 79 20 SECOND AVERAGING TYPE'S RALN INTERVAL START: *23:59:39*

| PRESS (MB) 993.53 | PR ALT (KH) •17 | T 14.12C | TAS (M/S) 80.39 | Z 4.40č-09 | و م |
|--|-------------------------------------|----------------------|--------------------|--|---------------------------------|
| SIZE JISTRIJUTIONS NUMBER/(4003-MH) | 2,795,407 2,565,407 6,195,406 | 2.345+06 7.81±+05 | | | 0. 0. 0. 1. 6.3726 1ED |
| PARTICLE SI ZF (MU) | N 2 W | 8 10 | 442 | 4 7 7 7 7 7 8 7 7 7 8 7 7 7 7 7 7 7 7 7 | 4990 NNN NN |

